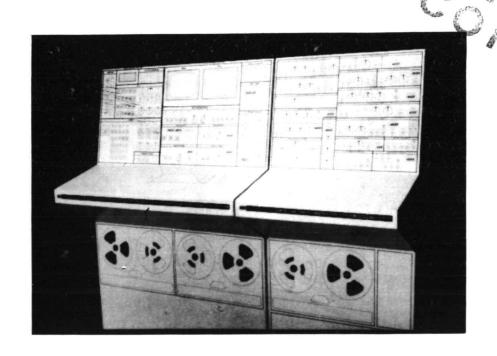
N13- 33 830

DEVELOPMENT OF FLIGHT EXPERIMENT WORK PERFORMANCE AND WORKSTATION INTERFACE REQUIREMENTS

FINAL REPORT CONTRACT NAS8-28359

AUGUST 31, 1973



PART II



DEVELOPMENT OF FLIGHT EXPERIMENT WORK PERFORMANCE AND WORKSTATION INTERFACE REQUIREMENTS

CONTRACT NAS8-28359

FINAL REPORT - PART II

APPENDIX H

AUGUST 31, 1973

PREPARED FOR:

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NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
HUNTSVILLE, ALABAMA 35812

PRL: 415

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Project Director for the URS/Matrix Company was G. Richard Hatterick. Principal contributors from the URS/Matrix Company, Man Systems Division, to the performance of the study reported herein were Robert C. Harrison, Edwin C. Pruett, James H. LeFan, Benita C. Hayes, Estelle M. Wald, and Thomas A. Dashner.



FOREWORD

This study contract (NAS8-28359) was awarded to the URS/Matrix Company by the NASA George C. Marshall Space Flight Center to define the task performance capability requirements and to develop concepts for the experimenter workstations for selected early Shuttle Sortie missions. A further goal was to update and expand the task performance requirement/capability data base. Methodology utilized in defining task performance requirements and requisite skills for payload experiments was the "Task-Skill" technique developed under Contract NASW-2192.

Readers of this report who are closely associated with the Sortie Lab program will recognize instances where statements made, or data presented, herein are not in accord with their own knowledge of the program. Every resonable attempt has been made to incorporate or reflect the current status of Sortie Lab definition and development. Such discrepancies are more easily understood when it is recognized that this study was initiated during the transition from the earlier baseline of "Blue Book" data, subsequently modified by RAM and SOAR studies, to what is now known as Sortie Lab. The rapidly changing environment in which experiment and payload definition studies are conducted makes such discrepancies inevitable.

This report provides a brief description of methodology, a presentation and discussion of the skill requirements for early Sortie Lab Earth Observation and Materials Sciences payloads, and the results of the analyses to define concepts for experimenter workstation configurations for these missions. It is expected that this report will have greatest utility to those involved in training and personnel resource planning, and Sortie Lab Support Module designers. It should also be useful to mission planners confronted with problems regarding payload composition.

The report is packaged in two parts: .

Part I: Technical Report, with Appendices A - G containing explanatory data.

Part II: Appendix H, containing the Data Sheets resulting from the Task/ Skill Requirements Analysis.



SUMMARY

Preliminary NASA studies aimed at definition of experiments and payloads for orbiting with the Space Shuttle system have included various types of crew skill requirements identification. The skill identification methods used, however, were inadequate, especially when applied to relatively undefined systems and configurations.

This study applied a skill requirement definition method (originally developed under Contract NASw-2192) to the problem of determining, at an early stage in system/mission definition, the skills required of on-orbit crew personnel whose activities will be related to the conduct or support of earth-orbital research. The experiment data base was selected from proposed experiments in NASA's Earth Orbital Research and Application Investigation program as related to Space Shuttle missions, specifically those being considered for Sortie Lab.

Activities during the study, documented in this report, include identification of basic functions dealing with man's research and/or servicing activities on orbit. A Crew Function Taxonomy was prepared relative to these activities. Likely candidate experiments for Shuttle Sortie missions were selected through extensive review of experiment and mission descriptions.

Crew functions and tasks were initially identified for more than fifty representative earth orbital experiments, and a comprehensive task analysis was conducted on these tasks for selected payloads.

Crew skill requirements for performance of three Earth Observations experiments and eight Materials Sciences experiments were identified through a technique called Task-Skill Requirements Identification. The concept and procedure of this technique, including use of the Task Dependency Reference system, is discussed, along with conversion of Task-Skills to Occupational Skill Classifications.

In addition, concepts for two integrated workstation consoles for Sortie Lab experiment operations were developed, one each for Earth Observations and Materials Sciences payloads, utilizing a common supporting subsystems core console.

A comprehensive data base of crew functions, operating environments, task dependencies, task-skills and occupational skills applicable to a representative cross section of earth orbital research experiments is presented. All data has been coded alphanumerically to permit efficient, low cost exercise and application of the data through automatic data processing in the future.



APPENDIX H

TASK/SKILL REQUIREMENTS DATA SHEETS

This part of the report presents the results of the task and skills analysis of selected experiments projected for Sortie Lab research missions. The methods used in arriving at the skills listed herein are explained in Section 2.0 of the report; the results are summarized by payload and experiment in Section 3.0.

Task/Skill Requirements data sheets for the following Sortie Lab experiments/payloads are included in this Appendix.

Earth Observations

- EO-3 Air and Water Pollution
- EO-4 Resource Location and Identification
- EO-5 Natural Disaster Assessment

Materials Sciences and Manufacturing

- MS-1 Biological Experiments
 MS-1(1) Separation of Biologicals
- MS-2 Levitation Experiments
 - MS-2(1) Preparation of Glasses
 - MS-2(2) Supercooling and Homogeneous Nucleation
 - MS-2(3) Crystal Growth from Solutions
- MS-3 Furnace Experiments
 - MS-3(1) Composite Materials
 - MS-3(2) Directional Solidification (Liquid Dispersions)
- MS-4 Small and Low Temperature Experiments
 - MS-4(1) Convection of Fluids
 - MS-4(2) Crystal Growth from Melts

NOTES FOR FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

Secondary task dependencies in parenthesis may be involved, but cannot be confirmed at present.	Simplified summary of tasks and skills; Series MS-1-A. Experiment 1.2, Preservation of Biologicals, covers complete requirements, but is not included herein since it is not designated for an early S/L mission.	Does not apply to early Sortie Lab missions, which will not include an onboard film processing capability. Will apply to later missions. In addition, film cameras are not included in the identified equipment requirements for the Sortie Lab MS Lab (for some experiments) although there is a general requirement for photography and film processing.	Does not apply to early Sortie tab missions which do not provide for on-board maintenance/repair capability. Will apply to later missions, which may also require scheduled maintenance.	This task (#7, function #06, Payload MS-2 (2)) was originally dependent on the utilization of the Zone Melter for ingot separation. Sortie lab documentation reviewed includes no provisions for use of the Zone Melter. Consequently, task dependency and skill relationships cannot be determined until substitute equipment is defined. An alternative approach might be to use smaller samples requiring no separation into manageable dimensions or shapes.	This experiment (MS-2(3)): Crystal Growth from Solutions) was selected as representative of the crystal growth experiments to satisfy Sortie Lab planning for "some" crystals experiments. See also payload MS-4(2).	This experiment (MS-3(2): Liquid Dispersions) was selected as representative of the convectionless solidification experiments to satisfy Sortie Lab planning for "directional solidification" experiments.	This experiment (NS-4(2): Crystal Growth from Melts) was selected as representative of the application of the zone refining technique to satisfy Sortie Lab planning for "zone refining" experiments.
Expt. #	MS-2	MS-3	FS-4	MS-5	MS-6	MS-7	MS-8
Does not apply to early Sortle Lab missions which do not provide for on-board maintenance/repair capability. Will apply to later missions, which may also require scheduled maintenance.		This is a special skill requirement for which no primary Occupational Skill category exists. Satisfaction of the skill requirement will require training and familiarization specific to the flight profile and planned mission operations, or with the specific item of equipment involved.					
Expt. #	E0-2	E0-3					f

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES

FPE: ES-1-EARTH OBSERVATIONS

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD EO-3

EXPERIMENT: 3.0 AIR AND WATER POLLUTION

DISCI	PLINE: Earth Resources				FPE: ES-1 E	arth Observations		MISSION	MODE: /: - · A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO)-3		EXPERIMENT	3.0 Air and Water Pollution	<u>-</u>	BASIC FU	JNCTION:04 - Experiment Set	up (
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	Y TITLE	NO.	NO.	TITLE	NOTE NO.
1	Observe settings on sensors	01 01 01 01 01 01 01	01 01 01 01 01	2.B.04-6 2.B.04-4 2.B.04-13 2.B.04-16 2.B.04-16 2.B.04-9 2.B.04-18 2.B.04-14	2.A.17-4	Camera Mcde Monitor Scanner Mode Monitor TV Camera Mode Monitor Radiometer Mode Monitor Polarimeter Mode Monitor Spectrometer Mode Monitor Telescope Mode Monitor Camera Mode Monitor Scanner Mode Monitor	0204 0209 0212 0644 0653 0787 0942 0204 0209	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician	
2	Record bandsettings, look angles, exposures, filters, etc.	06	01 .	2.8.04-18	2.A.01-5 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Telescope Mode Recorder	0943	003.281	Instrumentation Technician	
		06	01	2.B.04-13		TV Camera Mode Recorder	2045	003.281	Instrumentation Technician	
		06	01	2.B.04-4	2.A.19-1 2.A.15-1 2.A.15-2 2.F.02*3 4.D.08-2 4.D.10	Scanner Mode Recorder	2046	003.281	Instrumentation Technician	
		06	01	2.B.04-14		Scanner Mode Recorder	2046	003.281	Instrumentation Technician	
		-	01	2.8.04-11	2.A.21-2 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Radiometer Mode Recorder	2047	003.281	Instrumentation Technician	
		 -	<u> </u>	<u> </u>						
REV	ISION NO:	REVIS	SION DA	ΓE:	Ĭ	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A	PAGE E0-3-04-1

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	arth Observations		MISSION	MODE: A - Shuttle Sortle	
EXPE	RIMENT AREA: Sortie Lab P.	ayload EO	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEF	PENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
2	(Continued)	06	01	2.8.04-16	2.A.23 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Polarimeter Mode Recorder	2048	003.281	Instrumentation Technician	
									·	
REV	ISION NO:	REVIS	ION DAT	ч	1	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PA	AGE E0-3-04-2

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	th Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	load EO-	3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	UNCTION: 04 - Experiment Setup	-
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
3	Observe film remaining status	01 01 01 01 01	01	2.B.04-6 2.B.04-11 2.B.04-12 2.B.04-13 2.B.04-18	2.A.27-1 2.A.27-3 2.A.27-2 2.A.27-4 2.A.27-5	Camera Status Monitor Camera Status Monitor Camera Status Monitor TV Camera Status Monitor Camera Status Monitor	2050 2050 2050 2052 2052 2050	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
4	Review data collected, time remaining, atmospheric conditions, etc., to	02	01	5.1.01	5.B.02 2.A.01-5 2.B.04-18	Meteorological Conditions Observer	0516	025.088 025.288	Meteorologist Weather Observer (Aid)	
	establish observing program.	02 02	01 01	6.A.01-2 3.C.02-2	1.G.02-11 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Time Elapsed Observer Atmospheric Pollution Data Observer	2051 2053	xxx.xxx 024.081 025.088 025.288	Special Spaceflight Skill Geophysicist Meteorologist Weather Observer	E0-3
		02	01	3.C.03-2	5.I.01 5.B.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Water Pollution Data Observer	2054	024.081	Geophysicist: Hydrologist Oceanographer, Physical	
		02	01	3.C.04-2	5.1.01 5.8.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.1.01	Water Pollution Data Observer	2054	024.081	Geophysicist	
		11	01	3.C.02-2	5.B.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Atmospheric Pollution Data Evaluator	2056	024.081 025.081 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.03-2	5.B.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist Oceanographer, Physical	
REV	ISION NO:	REVIS	ION DA	re:	<u> </u>	PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A PAG	GE E0-3-04-3

EXPERIM	CIPLINE: EARTH RESOURCES PERIMENT AREA: Sortie Lab Payload E0-3									
_		oad EU	3	I	EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	INCTION: 04 - Experiment Setup	
CR	EW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
4 (0	Continued)	11	01	3.C.04-2	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer	
		11	01	5.1.01	5.I.01 5.B.02 5.B.02 2.A.01-5	Meteorological Condition Evaluator	2057	025.088 025.288	Meteorologist Weather Observer	
		11	01	6.A.01-1	2.A.01-5 2.B.04-18 6.A.01-2 6.A.01-3 5.L.02	Mission Events Evaluator	2058	xxx.xxx	Special Spaceflight Skill	E0-3
S CI	heckout experiment sensors	03 03 03 03 03 03 03 14 14 14 14 14	01 01 01 01 01 01 01	2.A.17-3 2.A.17-4 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15 2.B.04-6 2.B.04-12 2.B.04-13 2.B.04-14 2.B.04-14 2.B.04-11 2.B.04-16 2.B.04-9	4.D.18 4.D.18 4.D.18 4.D.18 4.D.18 4.D.18 4.D.18 4.D.18 2.A.17-3 2.A.17-4 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15	Camera Inspector Camera Inspector TV System Inspector Scanner Inspector Scanner Inspector Radiometer Inspector Polarimeter Inspector Spectrometer Inspector Camera Tester TV System Tester Scanner Tester Scanner Tester Radiometer Tester Polarimeter Tester Spectrometer Tester Spectrometer Tester Spectrometer Tester Spectrometer Tester	0294 0294 2059 0828 0828 0829 0831 0833 1448 2060 2061 2061 2061 2062	714.684 714.684 712.287 722.281 722.281 722.281 722.281 722.281 703.181 003.181 003.181 003.181 003.181 003.181	Camera Inspector Camera Inspector Inspector, Systems Inspector, Ichnician Electrical Technician	
6 C	Calibrate absorption spectrometer	08	01	2.8.04-9	2.A.03-15 4.C.01	Spectrometer Calibrator	0072	710.884 003.181	Calibrator Electrical Technician	
t	Coalign observation telescope with spectral polarimeter	09 09	}	2.B.04-18 2.B.04-16		Telescope Aligner Polarimeter Aligner	1	710.884 003.181 710.884 003.181	Calibrator Electrical Technician Calibrator Electrical Technician	
REVISIO	ON NO:	REVIS	ION DAT	re:	<u> </u>	PREPARED BY: JHL/GRH/EMW API	ROVED	BY: GRH	SERIES ES-1-A PA	AGEE0-3-04-4

DISCI	PLINE: EARTH RESOURCES]	FPE: ES-1 E	arth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
18	Select data collection mode	13	01	2.8.04-6	2.A.17-3 3.C.02 3.C.03	Camera Mode Selector .	0271	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist.	
		73	οη _.	2.8.04-12	3.C.04 2.A.17-4 3.C.02 3.C.03 3.C.04	Camera Mode Selector	0271.	025.088 003.181 024.081	Oceanographer Meteorologist Electrical Technician Geophysicist: Hydrologist,	
	,	13	10	2.8.04-13		TV Mode Selector	0268	025.088 003.181 024.081	Oceanographer Meteorologist Electrical Technician Geophysicist: Hydrologist Oceanographer	
		13	01	2.B.04-14	2.A.19-1 3.C.02 3.C.03 3.C.04	Scanner Mode Selector	0916	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer	
		13	01	2.8.04-4	2.A.19-2 3.C.02 3.C.03 3.C.04	Scanner Mode Selector	0916	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer	
		13		2.B.04-11	2.A.21-2 3.C.02 3.C.03 3.C.04	Radiometer Mode Selector	0917	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer	:
		13		2.8.04-16	2.A.23 3.C.02 3.C.03 3.C.04	Polarimeter Mode Selector	0918	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer	
		13		2.B.04-9	2.A.03-15 3.C.02 3.C.03 3.C.04	Spectrometer Mode Selector	0267	025.088 003.181 024.081	Meteorologist Electrical Technician	·
		13	01	2.B.04-18	2.A.01-5 3.C.02 3.C.03 3.C.04	Telescope Mode Selector	0265	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer	
						:			Coosting, aprici	
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DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	JNCTION: 04 - Experiment Setup)	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL		REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		NOTE NO.
25	Collaborate in air and water pollution analysis with ground observers	05 11	01 01	4.A.02 3.C.02-2	2.B.04 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Radio Communicator Atmospheric Pollution Data Evaluato	0206 2056	003.187 024.081 025.088 025.288	Radio Engineer Geophysicist: Hydrologist, Oceanographer Meteorologist Weather Observer		
		11	01	3.C.03-2	5.B.02 4.A.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer		
		11	01	3.C.04-2	5.B.02 4.A.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer		
					5.B.02 4.A.02						
										•	
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW A	APPROVED	BY: GRH	SERIES ES-1-A	PAGE	E0-3-04-6

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	th Observations		MISSION I	MODE: A - Shuttle Sortle	
EXPE	RIMENT AREA: Sortie Lab Pay	yload EO	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
27	Load film in cameras	27	01	2.A.27-1	2.A.17-3 2.E.06 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician	
		27	01 ·	2.A.27-2	2.A.17-4 2.E.06 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician	
		27	01	2.A.27-4	2.A.04-2 2.E.04 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician	
34	Perform instrument modification	26	01	2.A.O1-5	2.C.13 4.D.18	Telescope Module Remover	0187	007.081 003.181	Optical Technician Electrical Technician	
İ		27	01	2.A.01-5	2.C.13 4.D.18	Telescope Module Installer	0188	007.081 003.181	Optical Technician Electrical Technician	
		26	01	2.A.03-15	2.C.13	Spectrometer Module Remover	9109	003.181	Electrical Technician	
		27	01	2.A.03-15	4.D.18 2.C.13	Spectrometer Module Installer	0110	003.181	Electrical Technician	
		26	01	2.A.17-3	4.D.18 2.C.13 4.D.18	Camera Module Remover	0158	007.081 003.181	Optical Technician Electrical Technician	
1		27	01	2.A.17-3	l2.C.13	Camera Module Installer	0160	003.181 007.081 003.181	Ontical Technician	
	1	26	01	2.A.17-4	4.D.18 2.C.13	Camera Module Remover	0158	007.081	Electrical Technician Optical Technician	
1		27	01	2.A.17-4	4.D.18 2.C.13	Camera Module Installer	0160	003.181 007.081	Electrical Technician Optical Technician	Ì
		26	01	2.A.19-1	4.D.18 2.C.13	Scanner Module Remoyer	0904	003.181 003.181	Electrical Technician Electrical Technician	
	,	27	01	2.A.19-1	4.D.18 2.C.13	Scanner Module Installer	0905	003.181	Electrical Technician	
1	• • • • • • • • • • • • • • • • • • • •	26	01	2.A.21-2	4.D.18 2.C.13	Radiometer Module Remover	0638	003.181	Electrical Technician	
		27	01	2.A.21-2	4.D.18 2.C.13	Radiometer Module Installer:	0637	003.181	Electrical Technician	
		26	01	2.A.23	4.D.18 2.C.13	Polarimeter Module Remover	0908	003.181	Electrical Technician	
		27	01	2.A.23	4.D.18 2.C.13	Polarimeter Module Installer	0909	003.181	Electrical Technician	
		26	01	2.A.19-2	4.D.18 2.C.13 4.D.18	Scanner Module Remover	0904	003.181	Electrical Technician	
REV	ISION NO:	REVIS	ION DA	re:		REPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PAC	SE E0-3-04-7

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	yload EO	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
34	(Continued)	27	01	2.A.19-2	2.C.13 4.D.18	Scanner Module Installer	0905	003.181	Electrical Technician	
		26	01	2.A.04-2	2.0.13	TV Camera Module Remoyer	0111	003.181	Electrical Technician	
		27	01	2.A.04-2	4.D.18 2.C.13	TV Camera Module Installer	0112	003.181	Electrical Technician	
		26	01	4.B.01-3	4.D.18 2.C.13	Computer Module Remover	0519	003.187	Systems Eng., Elec. Data Processing	
		27	01	4.B.01-3	4.D.18 2.C.13	Computer Module Installer	0520	003.181 003.187	Electrical Technician Systems Eng., Elec. Data Processing	
	· ·	26	01	2.B.04-18	4.D.18 2.C.13	Earth Survey C/D Equip. Module Remove	0926	003.181 828.281	Electrical Technician Electronics Mechanic	
		27	01	2.B.04-18	4.D.18 2.C.13	Earth Survey C/D Equip. Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
		-	-		4.0.18	Installer		003.181	Electrical Technician	
:		26	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remove	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
•		27	01	2.8.04-9	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.8.04-9	2.C.13	Earth Survey C/D Equip. Module Remove	0926	828.281	Electronics Mechanic	
		27	01	2.B.04-6	4.D.18 2.C.13	Earth Survey C/D Equip. Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
		26	01	2.B.04-12	4.D.18 2.C.13	Installer Earth Survey C/D Equip. Module Removes	0926	003.181 828.281	Electrical Technician Electronics Mechanic	
		27	01.	2.B.04-12	4.D.18 2.C.13	Earth Survey C/D Equip. Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	Ì
				1	4.0.18	Installer		003.181	Electrical Technician	1
		26	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remove	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	ł
		26	01	2.B.04-11	2.C.13	Earth Survey C/D Equip. Module Remove	0926	828.281	Electronics Mechanic	
	1.	27	01	2.B.04-11	4.D.18 2.C.13	Earth Survey C/D Equip. Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
					4.D.18	Installer	i	003.181	Electrical Technician	
		26	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remove	r 0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		1		1	1		<u> </u>	1		<u></u>
REV	VISION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A PAGE	E0-3-04-8

DISC	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION M	ODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	vload EO	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FUN	ICTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	. TASK - SKILL		Р	RIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
34	(Continued)	27 26 27 26 27 26 27	01 01 01 01 01 01	2.B.04-11 2.B.04-15 2.B.04-4 2.B.04-4 2.B.04-13 2.B.04-13	4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer Earth Survey C/D Equip. Module Removed Earth Survey C/D Equip. Module Installer Earth Survey C/D Equip. Module Installer Earth Survey C/D Equip. Module Installer Earth Survey C/D Equip. Module Removed Eqrth Survey C/D Equip. Module Installer	0927 0926 0927	003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181	Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electrical Technician Electronics Mechanic Electrical Technician	
REV	REVISION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A	PAGE E0-3-04-9

DISCI	PLINE: EARTH RESOURCES				FPE:	ES-1 Earth Observations		MISSION N	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	yload EO-	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 05. Experiment Shutdown	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
30	Shutdown sensors	16 16 16 16 16 16 16 16	01 01 01 01 01 01 01 01 01	2.B.04-6 2.B.04-12 2.B.04-13 2.B.04-1 2.B.04-4 2.B.04-11 2.B.04-16 2.B.04-9 2.B.04-18	2.A.17-3 2.A.17-4 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15 2.A.01-5	Camera Control Deactuator Camera Control Deactuator TV System Control Deactuator Scanner Control Deactuator Scanner Control Deactuator Radiometer Control Deactuator Polarimeter Control Deactuator Spectrometer Control Deactuator Telescope Control Deactuator	0848 0848 2068 0849 0673 0919 0409 0320	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician	
31	Package data for earth return	17	01	2.A.27-1	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill	
		17	01	2.A.27-2	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill	
		17	01	2.A.27-3	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill	
•		17	01	2.A.27-4	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill	
		17	01	2.A.27-5	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill	
32	Clean and service optics	19	01	2.A.01-5	4.D.06 4.D.18	Telescope Optics Cleaner	0004	003.281	Instrumentation Technician	
		19	01	2.A.03-15	2.C.13 4.D.06 4.D.18	Spectrometer Optics Cleaner	0095	003.281	Instrumentation Technician 🛴 🍾	
		19	01	2.A.17-3	2.C.13 4.D.06 4.D.18	Camera Optics Cleaner	0097	003.281	Instrumentation Technician	
		19	01	2.A.17-4	2.C.13 4.D.06 4.D.18 2.C.13	Camera Optics Cleaner	0097	003.281	Instrumentation Technician	
	<u> </u>		<u></u>	<u> </u>	<u> </u>					
REV	ISION NO:	REVIS	SION DA	TE:	F	REPARED BY: JHL/GRH/EMW A	PPROVED	BY: GR	H SERIES ES-1-A PAG	E E0-3-05-

DISC	IPLINE: EARTH RESOURCES				FPE:	ES-1 Earth Observations		MISSION N	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Paylo	pad E0-3			EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 05 Experiment Shutdown	
	CREW TASK STATEMENT		OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL		•	PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
32	(Continued)	19	01	2.A.19-1	4.D.06 4.D.18	Scanner Optics Cleaner	0884	003.281	Instrumentation Technician	
		19	01 .	2.A.21-2	2.C.13 4.D.06 4.D.18	Radiometer Optics Cleaner	0924	003.281	Instrumentation Technician	
	·	19	01	2.A.23	2.C.13 4.D.06 4.D.18	Polarimeter Optics Cleaner	0925	003.281	Instrumentation Technician	
		19	01	2.A.19-2	2.C.13 (4.D.06 4.D.18	Scanner Optics Cleaner	0884	003.281	Instrumentation Technician	
		19	01	2.A.04-2	2.C.13 4.D.06 4.D.18 2.C.13	TV Camera Optics Cleaner	0096	003.281	Instrumentation Technician	
. ,										
REV	I SION NO:	REVISI	ON DAT	<u>и</u> ГЕ:	<u> </u>	PREPARED BY: JHL/GRH/EMW · '	APPROVED	BY: GRH	SERIES ES-1-A PAG	E E0-3-05-2

DISC	PLINE: EARTH RESOURCES			F	PE: ES	-1 Earth Observations "		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	3	E	XPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT,	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
1	Observe settings on sensors	01 01 01 01 01 01 01 01	01 01 01 01 01	2.B.04-6 2.B.04-4 2.B.04-13 2.B.04-11 2.B.04-16 2.B.04-9 2.B.04-18 2.B.04-12 2.B.04-14	2.A.17-3 2.A.19-1 2.A.04-2 2.A.21-2 2.A.23 2.A.03-15 2.A.01-5 2.A.17-4 2.A.19-2	Camera Mode Monitor Scanner Mode Monitor TV Camera Mode Monitor Radiometer Mode Monitor Polarimeter Mode Monitor Spectrometer Mode Monitor Telescope Mode Monitor Camera Mode Monitor Scanner Mode Monitor	0204 0209 0212 0644 0653 0787 0942 0204	003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician	
2	Record bandsettings, look angles, exposures, filters, etc.	06	01	2.B.04-18	2.A.01-5 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Telescope Mode Recorder	0943	003.281	Instrumentation Technician	
		06	01	2.8.04-13	2.A.04-2 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	TV Camera Mode Recorder	2045.	003.281	Instrumentation Technician	
-		06	01	2.B.04-4	2.A.19-1 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician	
		06	01	2.8.04-14	4.D.10 2.A.19-2 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Scanner Mode Recorder	2046	003.281	Instrumentation Technician	
				·						
REV	ISION NO:	REVIS	ION DAT	re:	1	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRI	SERIES ES-1-A PA	GE E0-3-06-1

DISCI	PLINE: EARTH RESOURCES				FPE:	ES-1 Earth Observations		MISSION	MODE: A - Shuttle Sortle	
EXPE	RIMENT AREA: Sortie Lab Payl	load EO-	3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	INCTION: 06 Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
2	(Continued)	06	01	2.8.04-11	2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Telescope Mode Recorder	0943	003.281	Instrumentation Technician	
	•	06	01	2.8.04-16	4.D.10 2.A.15-1 2.A.15-2 2.F.02-3	Polarimeter Mode Recorder	2048	003.281	Instrumentation Technician	
		06	01	2.8.04-9	4.D.08-2 4.D.10 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Spectrometer Mode Recorder	2049	003.281	Instrumentation Technician	
3	Observe film remaining status	01 01 01 01 01	01 01 01 01 01	2.B.04-6 2.B.04-11 2.B.04-12 2.B.04-13 2.B.04-18	2.A.27-1 2.A.27-3 2.A.27-2 2.A.27-4 2.A.27-5	Camera Status Monitor Camera Status Monitor Camera Status Monitor TV Camera Status Monitor Camera Status Monitor	2050 2050 2050 2050 2052 2050	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
9	Use telescope to scan area for ocean spectral analysis	02	01	2.8.04-18	2.A.01-5 2.A.14	Telescope Presentation Observer	0895	024.081	Geophysicist: Hydrologist, Oceanographer	
		10	01	2.8.08	2.A.15 3.C.04 2.A.01-5 2.A.14 2.A.15	Telescope Controller	0337	xxx.xxx	Special Spaceflight Skill	E0-3
10	Use sensors to detect polluted air masses	02	01	2.8.04-13	3. C. 02-2 2. A. 14 2. A. 15 2. A. 27 2. B. 04-18 2. A. 17-3 2. A. 17-4	TV Presentation Observer	0896	024.081	Geophysicist: Hydrologist, Oceanographer	
REV	ISION NO:	REVIS	ION DA	TE:	2.A.01-5	PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GRH	SERIES ES-1-A PAGE	E E0-3-06-2

DISCI	PLINE: EARTH RESOURCES				FPE:	ES-1 Earth Observations		MISSION	MODE: A - Shuttle Sortle	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	UNCTION: 06 Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEF	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
10	(Continued)	02	01	2.8.04-14	3.C.02-2	Scanner Presentation Observer	0897	024.081	Geophysicist	
		02	01	2.8.04-4	2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5 2.A.19-2 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4	Scanner Presentation Observer	0897	024.081	Geophysicist	
		02	01	2.B.04-11	2.A.17-3 2.A.01-5 2.A.21-2 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3	Radiometer Presentation Observer	0898	024.081	Geophysicist	
		02	01	2.B.04-16	2.A.17-4 2.A.01-5 2.A.23 3.C.02-2 2.A.14	Polarimeter Presentation Observer	0914	024.081	Geophysicist	
					2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5					
REVI	SION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GRH	SERIES ES-1-A PA	GE E0-3-06-3

DISCI	PLINE: EARTH RESOURCES				FPE: 📞 ES	-1 Earth Observations :		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	rloàd EO	-3	1	EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	INCTION: 06 Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
10	(Continued)	02	01	2.8.04-9	2.A.03-15 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3	Spectrometer Presentation Observe	r 0915	024.081	Geophysicist	
		04	01	2.B.04 - 13	2.8.04-18 2.A.17-3 2.A.17-4 2.A.01-5 2.A.04-2 3.C.02-2 2.A.01-5 2.F.02-4	TV Data Classifier	2076	024.081	Geophysicist	
		04	01	2.8.04-14	2.F.02-4 2.A.19-1 3.C.02-2 2.A.01-5 2.F.02-4 2.A.19-2	Scanner Data Classifier	2077	024.081	Geophysicist	
		04	01	2.B.04-4	3.C.02-2 2.A.01-5 2.F.02-4	Scanner Data Classifier	2077	024.081	Geophysicist	
		04	01	2.8.04-11	2.A.21-2 3.C.02-2 2.A.01-5 2.F.02-4	Radiometer Data Classifier	2078	024.081	Geophysicist	
		. 04	01	2.B.04-16	2.A.23 3.C.02-2 2.A.01-5	Polarimeter Data Classifier	2079	024.081	Geophysicist	
		04	01	2.8.04-9	2.F.02-4 2.A.03-15 3.C.02-2 2.A.01-5 2.F.02-4	Spectrometer Data Classifier	2080	024.081	Geophysicist	
						· :				
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A	PAGE E0-3-06-4

DISCI	PLINE: EARTH RESOURCES				FPE: E	S-1 Earth Observations		MISSION	MODE: A - Shu	ttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Paylo	oad EO-3			EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	JNCTION: 06 Ex	periment Conduct		
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	еире́ису ио	TASK - SKILL			PRIMARY OCCU	PATIONAL SKILL	I	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.		TITLE		NOTE NO.
11	Identify ocean pollution and vegetation	02		2.8.04-13	3.C.04-1	TV Presentation Observer	0896	024.081	Geophysicist	: Oceanographer, Hydrologist		
		02	01	2.8.04-14	2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.19-1 3.C.04-1 3.C.04-2 2.A.15 2.A.27	Scanner Presentation Observer	0897	024.081	Geophysicist	: Oceanographer, Hydrologist		
		02	01	2.8.04-4	2.E.05 2.B.04-6 2.B.04-12 2.A.19-2 3.C.04-1 3.C.04-2	Scanner Presentation Observer	0897	024.081	Geophysicist	:: Oceanographer, Hydrologist		
		02	01	2.8.04-11	2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.21-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05	Radiometer Presentation Observer	0898	024.081	Geophysicisi	: Oceanographer, Hydrologist		
					2.E.05 2.B.04-6 2.B.04-12							
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH		SERIES ES-1-A	PAGE E	E0-3-06-5

DISCI	PLINE: EARTH RESOURCES				FPE: E	5-1 Earth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pag	yload EO	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 06 Experiment Conduct	
-	CREW TASK STATEMENT	CREW	OPER.	TASK DEF	PENDENCY NO.	TASK - SKILL	- 1 d A/A		PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT. NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
וו	(Continued)	02	10	2.8.04-16	3.C.04-1 3.C.04-2 2 A 14	Polarimeter Presentation Observer	0914	024.081	Geophysicist: Oceanographer, Hydrologist	
		02	01	2.8.04-9	2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.03-15 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27	Spectrometer Presentation Observer	0915	024.081	Geophysicist: Oceanographer, Hydrologist	
		04	01	2.8.04-13	2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.04-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27	TV Data Classifier	2076	024.081	Geophysicist: Oceanographer, Hydrologist	4. A
·		04	01	2.8.04-14	2.E.05 2.B.04-6 2.B.04-12	Scanner Data Classifier	2077	024.081	Geophysicist: Oceanographer, Hydrologist	
				·	2.E.05 2.B.04-6 2.B.04-12					ſ
REV	ISION NO:	REVIS	ION DAT	E:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PAGI	E E0-3-06-6

DIS	CIPLINE: EARTH RESOURCES				FPE: ES-	-1, Earth Observations		MISSION	MODE: A - Shu	ttle Sortie	
EXI	PERIMENT AREA: Sortie Lab Pay	load EO	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	JNCTION: 06	Experiment Conduc	t
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCU	PATIONAL SKILL	REFERENCE
NO	. DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.		TITLE	NOTE NO.
11	(Continued)	04	01	2.8.04-4	2.A.19-2 3.C.04-1 3.C.04-2 2.A.14	Scanner Data Classifier	2077	024.081	Geophysicis	:: Oceanographer, Hydrologist	
		04	01	2.B.04-11	2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.21-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27	Radiometer Data Classifier	2078	024.081	Geophysicis	:: Oceanographer, Hydrologist	
		04	01	2.B.04-16	2.E.05 2.B.04-6 2.B.04-12 2.A.23 3.C.04-1 3.C.04-2 2.A.14 2.A.15	Polarimeter Data Classifier	2079	02 4. 081	Geophysicis	:: Oceanographer, Hydrologist	
		04	01	2.B.04-9	2. E.05 2. B.04-6 2. B.04-12 2. A.03-15 3. C.04-1 3. C.04-2 2. A.14 2. A.15 2. A.27 2. E.05 2. B.04-6 2. B.04-12	Spectrometer Data Classifier	2080	024.081	Geophysicis	:: Oceanographer, Hydrologist	
UT	EVISION NO:	prvic	SION DA	LE.		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR		SERIES ES-1-A	PAGE E0-3-06-7

DISCI	PLINE: EARTH RESOURCES			,	FPE: ES-	l Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	UNCTION: 06 Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
12	Identify water pollution targets	02	01	2.8.04-13	2.A.04-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27	TV Presentation Observer	0896	024.081	Geophysicist: Oceanographer, Hydrologist	
		02	01	2.B.04-14	2.A.15 2.E.05 2.B.04-6 2.B.04-12 2.A.19-1 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6	Scanner Presentation Observer	0897	024.081	Geophysicist: Oceanographer, Hydrologist	
		02	01	2.B.O4-4	2.E.05 2.B.04-6 2.B.04-12 2.A.19-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6	Scanner Presentation Observer	0897	024.081	Geophysicist: Oceanographer, Hydrologist	
		02	01	2.8.04-11	2.8.04-12 2.A.21-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05	Radiometer Presentation Observer	0898	024.081	Geophysicist: Oceanographer, Hydrologist	
					2.8.04-12					
REV	ISION NO:	REVIS	SION DA	re:		PREPARED BY: JHL/GRH/EMW API	PROVED	BY: GRH	SERIES ES-1-A PAGE	E E0-3-06-8

NO.	CREW TASK STATEMENT DESCRIPTION	CREW OP		EXPERIMENT:	3.0 Air and Water Pollution	İ	BASIC FU	NCTION: 06 Experiment Conduct	_
NO.		FUNCT. EM	ER. TASK DEP		ENCY NO. TASK - SKILL		,		
NO.	DESCRIPTION		- I - · · · · · · · · · · · ·	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
ł		NO. N	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
12	(Continued)	02 0	1 2.8.04-16	2.A.23 3.C.04-2 3.C.03-2 2.A.14 2.A.15	Polarimeter Presentation Observer	0914	024.081	Geophysicist: Oceanographer, Hydrologist	
		02 0	1 2.8.04-9	2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.03-15 3.C.04-2 3.C.03-2 2.A.14	Spectrometer Presentation Observer	0915	024.081	Geophysicist: Oceanographer, Hydrologist	
		04 0	1 2.8.04-13	3.C.04-2 3.C.03-2 2.A.14 2.A.15	TV Data Classifier	2076	024.081	Geophysicist: Oceanographer, Hydrologist	
		04 0	1 2.8.04-14	2.E.05 2.B.04-6 2.B.04-12	Scanner Data Classifier	2077	024.081	Geophysicist: Oceanographer, Hydrologist	
	VISION NO:	REVISION			PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GR	SERIES ES-1-A PAGE	E0-3-06-9

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	th Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	JNCTION: 06 Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DE	PENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
12	(Continued)	04		2.B.04~4	2.A.19-2 3.C.04-2 3.C.03-2 2.A.14	Scanner Data Classifier	2077	024.081	Geophysicist: Oceanographer, Hydrologist	
		04	01	2.B.04-11	3.C.04-2 3.C.03-2 2.A.14 2.A.15	Radiometer Data Classifier	2078	024.081	Geophysicist: Oceanographer, Hydrologist	-
		04	01	2.8.04-16	3. C. 04-2 3. C. 03-2 2. A. 14	Polarimeter Data Classifier	2079	024.081	Geophysicist: Oceanographer, Hydrologist	
		04	01	2.B.04-9	2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.03-15 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05	Spectrometer Data Classifier	2080	024.081	Geophysicist: Oceanographer, Hydrologist	
13	Track polluted air mass	02	01	2.8.04-9	2.8.04-6 2.8.04-12 2.A.03-15 3.C.02-2 2.E.05	Spectrometer Presentation Observer	0915	024.081	Geophysicist: Oceanographer, Hydrologist	
REV	ISION NO:	REVIS	SION DAT	re:	I F	PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A PAGE	E0-3-06-10

DISCI	PLINE: EARTH RESOURCES			I	FPE: ES-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pag	yload EC)-3	3	EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 06 Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	FUNCT. NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
13	(Continued)	02	01	2.B.04-16	2.A.23 3.C.02-2	Polarimeter Presentation Observer	0914	024.081	Geophysicist	
	· ,	02	01	2.8.09	2.E.05 2.A.01-5 2.B.04-18 3.C.02-2	Telescope Presentation Observer	0895	024.081	Geophysicist	
		10	01	2.8.04-6	2.E.05 2.A.17-4 3.C.02-2	Camera Controller	0335	xxx.xxx	Special Spaceflight Skill	E0-3
		10	01	2.8.04-0	2.A.03-5 3.C.02-2	Spectrometer Controller	0336	xxx.xxx	Special Spaceflight Skill	E0-3
•		10	01	2.8.04-16	2.A.23 3.C.02-2	Polarimeter Controller	2081	xxx.xxx	Special Spaceflight Skill	E0-3
		10	10	2.B.04-18	2.A.01-5 2.B.09 3.C.02-2	Telescope Controller	0337	xxx.xxx	Special Spaceflight Skill	E0-3
14	Analyze polluted air content	12	01	2.B.04-13	2.A.04-2 2.B.09 3.C.02-2 2.F.01-1	TV Data Analyzer	2082	024.081	Geophysicist	
		12	01	2.B.04-14	2.F.03 2.A.19-1 3.C.02-2 2.F.01-1 2.F.03	Scanner Data Analyzer	2083	024.081	Geophysicist	
		12	01	2.B.04-4	2.A.19-2 3.C.02-2 2.F.01-1	Scanner Data Analyzer	2083	024.081	Geophysicist	
		12	oi	2.B.04-11	2.F.03 2.A.21-2 3.C.02-2 2.F.01-1	Radiometer Data Analyzer	2084	024.081	Geophysicist	
		12	01	2.8.04-16	2.F.03 2.A.23 3.C.02-2 2.F.01-1 2.F.03	Polarimeter Data Analyzer	2085	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DA	TE:	1	PREPARED BY: JHL/GRH/EMW AF	PROVED	BY: GRH	SERIES EŞ-1-A PA	GE E0-3-06-11

DISCI	PLINE: EARTH RESOURCES				FPE: _ ES-1.E	arth Observations, 🔍 .		MISSION	MODE: A - Shuttle Sortie	
EXPER	RIMENT AREA: Sortie Lab, Pa	yload E	0-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 06 Experiment Conduct	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	PENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
14	(Continued)	12	01	2.8.04-9	2.A.03-15 3.C.02-2 2.F.01-1	Spectrometer Data Analyzer	2086	024.081	Geophysicist	
		12	01.	2.8.09	3.C.02-2 2.F.01-1 2.F.03 2.B.04-18 2.A.01-5 3.C.02-2 2.F.01-1 2.F.03	Telescope Data Analyzer	2087	024.081	Geophysicist	
15	Record areal extent and tonal contract of pollutants in atmosphere and water	15	01	2.B.04-6	2.A.17-3 2.F.02-2 4.D.08-2	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.B.04-12	4.0.10 2.A.17-4 2.F.02-2 4.D.08-2 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.B.04-13	2.F.03 2.A.04 2.F.02-2 4.D.08-2 4.D.10	TV System Control Actuator	1549	003.281	Instrumentation Technician	
		15	01	2.8.04-11		Radiometer Control Actuator	0843	003.281	Instrumentation Technician	
16	Determine if standard sensors are adequate due to weather conditions	04	01	2.4.19-1	2.B.04-14 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02	Scanner Adequacy Determiner	2088	024.081	Geophysicist	
		04	01	2.A.19-2	5.I.01 2.B.04-4 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Scanner Adequacy Determiner	2088	024.081	Geophysicist	
REVI	SION NO:	REVIS	ION DAT	E:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	SERIES ES-1-A P	AGE E0-3-06-12

EXPE	1			FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
	RIMENT AREA: Sortie Lab Pay	load E0-3		EXPERIMENT: 3.0 Air and Water Pollution BA				BASIC FUNCTION: 06 Experiment Conduct			
		CREW OP FUNCT EN	ER. TASK DEF	ENDENCY NO.	TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE		
NO.	DESCRIPTION		O. PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
16	(Continued)	04 0	1 2.A. 04-2	2.B.04-13 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02	TV Camera Adequacy Determiner	2089	024.081	Geophysicist			
		04 0	1 2.A.21-2	5.1.01 2.8.04-11 3.C.02-2 3.C.03-2 3.C.04-2	Radiometer Adequacy Determiner	2090	024.081	Geophysicist			
		04 0	1 2.A.23	3.C.02-2 3.C.03-2 3.C.04-2 5.B.02	Polarimeter Adequacy Determiner	2091	024.081	Geophysicist			
		04 0	1 2.A.01-5	5.I.01 2.B.04-18 2.B.09 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02	Telescope Adequacy Determiner	2092	024.081	Geophysicist			
		04 0	1 2.4.17-3	5.1.01 2.8.04-6 2.8.09 2.A.27 3.C.02-2 3.C.03-2 3.C.04-2 5.8.02	Camera Adequacy Determiner	2093	024.081	Geophysicist			
		04 0	1 2.A.17-4	5.I.01 2.B.04-12 2.B.09 2.A.27 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Camera Adequacy Determiner	2093	024.081	Geophysicist			
REV	ISION NO:	REVISION	DATE:	. 1	PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GRI	SERIES ES-1-A PA	GE E0-3-06-13		

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pa	ayload E	003		EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
17	Activate sensors	15 15 15 15 15 15 15	01 01	2.8.04-6 2.8.04-12 2.8.04-13 2.8.04-14 2.8.04-1 2.8.04-16 2.8.04-9	2.A.17-3 2.A.17-4 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15	Camera Control Actuator Camera Control Actuator TV Camera Control Actuator Scanner Control Actuator Scanner Control Actuator Radiometer Control Actuator Polarimeter Control Actuator Spectrometer Control Actuator	0245 0672 0842 0842 0843 0844	003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician			
19	Monitor data collection	15	01	2.B.04-18 2.B.04-6	2.A.01-5 2.F.01 2.F.03	Telescope Control Actuator Camera Operation Monitor	0846	003.281	Instrumentation Technician Instrumentation Technician			
	process	01	01	2.B.04-12	4.8.01-2	Camera Operation Monitor	1344	003.281	Instrumentation Technician			
		01	01	2.B.04-13 2.B.04-14	2.F.01 2.F.03 4.B.01-2	TV System Operation Monitor Scanner Operation Monitor		003.281	Instrumentation Technician Instrumentation Technician			
ľ		01		2.B.04-4	2.F.03 4.B.01-2 2.F.01 2.F.03	Scanner Operation Monitor	2095	003.281	Instrumentation Technician			
		01	01	2.8.04-11	4.B.01-2 2.F.01 2.F.03 4.B.01-2	Radiometer Operation Monitor	2096	003.281	Instrumentation Technician			
		01	01	2.B.04-16	2.F.01 2.F.03 4.B.01-2	Polarimeter Operation Monitor	[003.281	Instrumentation Technician			
		01	01	2.8.04-9 2.8.04-18	2.F.01 2.F.03 4.B.01-2 2.F.01	Spectrometer Operation Monitor Telescope Operation Monitor	•	003.281	Instrumentation Technician Instrumentation Technician			
					2.F.03 4.B.01-2							
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A	PAGE E0-3-06-14		

DISCIPLINE: EARTH RESOURCES					PPE: ES-1	Earth Observation		MISSION MODE: A - Shuttle Sortie			
EXPE	EXPERIMENT AREA: Sortie Lab Payload E0-3					3.0 Air and Water Pollution	BASIC FUNCTION: 06 Experiment Conduct				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NO.	
20	Record fresh water pollution targets	02	01	3.C.03-2	5.8.02 5.1.01 2.8.04-13 2.8.04-14 2.8.04-4 2.8.04-16 2.8.04-9	Water Pollution Data Observer	2054	024.081	Geophysicist: Oceanographer Hydrologist		
		15 15 15 15 15 15 15 15	01 01 01 01 01 01 01	2.B.04-6 2.B.04-12 2.B.04-13 2.B.04-14 2.B.04-4 2.B.04-11 2.B.04-16 2.B.04-9	2.B.04-18 2.A.17-3 2.A.17-4 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15	Camera Control Actuator Camera Control Actuator TV System Control Actuator Scanner Control Actuator Scanner Control Actuator Radiometer Control Actuator Polarimeter Control Actuator Spectrometer Control Actuator	0245 1549 0842 0842 0843 0844	003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician		
21	Review data collected for quality and usefulness	וו	01	3.C.02-2	2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15 2.B.09 2.F.02-5	Atmosphere Pollution Data Evaluator	2056	024.081	Geophysicist		
		11	01	3.C.03-2	2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15 2.B.09 2.F.02-5	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Oceanographer, Hydrologist		
REV	REVISION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GI	RH SERIES ES-1-A	PAGE E0-3-06-15	

	DISCIPLINE: EARTH RESOURCES					arth Observations	MISSION MODE: A - Shuttle Sortie						
EXPERIMENT AREA: Sortie Lab Payload E0-3					EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct				
CREW TASK STATEMENT		CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			REFERENCE				
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.			
21	(Continued)	וו		3.C.04-2	2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15 2.B.09 2.F.02-5	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer				
22	Identify irrelevant data	04	01	3.C.02-2	2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.23 2.A.03-15	Atmospheric Pollution Data Classifi	er 2100	024.081	Geophysicist				
•		04	01	3.C.03-2	2.8.09 2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.23 2.A.03-15	Water Pollution Data Classifier	2101	024.081	Geophysicist: Hydrologist, Oceanographer				
		04	01	3.C.04-2	2.B.09 2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.23 2.A.03-15 2.B.09	Water Pollution Data Classifier	2101	024.081	Geophysicist: Hydrologist, Oceanographer				
DEVI	ISION NO:	DEVIC	ION DAT	l.		PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GRI	SERIES ES-1-A PAG	GE E0-3-06-16			

DISCIPLINE: EARTH RESOURCES					FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie				
EXPE	EXPERIMENT AREA: Sortie Lab Payload E0-3					3.0 Air and Water Pollution	BASIC FUNCTION: 06 Experiment Conduct						
CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL		Ì	PRIMARY OCCUPATIONAL SKILL	REFERENCE				
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.			
23	Process film	06	01	4.B.08	2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-4 2.A.27-5	Film Developer	0328	976.782	Film Developer	E0-2			
24	Evaluate photographic/ cartographic quality of data	11	01	2.8.09	3.C.02-2 3.C.03-2 3.C.04-2 2.A.17-3 2.A.17-4	Video Data Quality Evaluator	2102	024.081	Geophysicist				
25	Collaborate in air and water pollution analysis with ground observers	05 11	01 01	4.A.02 3.C.02-2	2.B.04 2.F.01-1 2.F.02-3 2.F.03-1 2.6.03-1 5.I.01 5.B.02	Radio Communicator Atmospheric Pollution Data Evaluator	0206 2056		Radio Engineer Geophysicist				
		77	01	3.C.03-2	4.A.02 2.F.01-1 2.F.02-3 2.F.03-1 2.63-1 5.I.01 5.B.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Oceanographer, Hydrologist				
		11	01	3.0.04-2	4.A.02 2.F.01-1 2.F.02-3 2.F.03-1 2.6.03-1 5.I.01 5.B.02 4.A.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Oceanographer, Hydrologist				
				<u> </u>	<u>. L </u>								
REV	ISION NO:	REVIS	ION DA	TE:		PREPARED BY: JHL/GRH/EMW AF	PROVED	BY: GRH	SERIES ES-1-A PA	GE E0-3-06-17			

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO	-3		EXPERIMENT	3.0 Air and Water Pollution		BASIC FU	JNCTION: 06 Experiment Conduc	t
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	Y TITLE	NO.	NO.	TITLE	NOTE NO.
28	Monitor sensor electronic quality	01	01	2.B.04-13	2.A.04-2 3.C.02-2 3.C.03-2	TV Data Quality Monitor	0922	003.281	Instrumentation Technician	
		01	01 ·	2.B.04-14	3. C.04-2 2. A. 19-1 3. C.02-2 3. C.03-2	Scanner Data Quality Monitor	0869	003.281	Instrumentation Technician	
		01	01	2.B.04-4	3.C.04-2 2.A.19-2 3.C.02-2 3.C.03-2 3.C.04-2	Scanner Data Quality Monitor	0869	003.281	Instrumentation Technician	
		01	01	2.8.04-11	2.A.21-2 3.C.02-2 3.C.03-2 3.C.04-2	Radiometer Data Quality Monitor	0870	003.281	Instrumentation Technician	
	,	01 -	01	2.8.04-16	2.A.23 3.C.0202 3.C.03-2 3.C.04-2	Polarimeter Data Quality Monitor	0873	003.281	Instrumentation Technician	
		01	01	2.B.04-9	2.A.03-15 3.C.0202 3.C.03-2 3.C.04-2	Spectrometer Data Quality Monitor	0872	003.281	Instrumentation Technician	
29	Evaluate proper sensor operation	11 11 11 11 11 11	01 01	2.8.04-6 2.8.04-12 2.8.04-13 2.8.04-14 2.8.04-14 2.8.04-16 2.8.04-0 2.8.04-18	2.A.17-3 2.A.17-4 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15 2.A.01-5	Camera Operation Evaluator Camera Operation Evaluator TV Camera Operation Evaluator Scanner Operation Evaluator Scanner Operation Evaluator Radiometer Operation Evaluator Polarimeter Operation Evaluator Spectrometer Operation Evaluator Telescope Operation Evaluator	0875 0923 0876 0876 0877 0880 0879	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: G	RH SERIES ES-1-A	PAGE E0-3-06-18

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	th Observations		MISSION	MODE: A - Shuttle Sortle	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	.3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	ONCTION: 1C - Unscheduled Mainte (See Note E0-1)	nance
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
8	Replace/repair any malfunctioning components	07	01	2.8.04-6	2.A.17-3	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic	
	mattenerioning components	07	01	2.B.04-12	2.A.17-4	Camera Fault Identifier	0886	828.281	Optical Technician Electronics Mechanic	
		07	01	2.B.04-13	2.A.04-2	TV System Fault Identifier	2064	007.081 828.281	Optical Technician Electronics Mechanic	Ĭ
		07	01	2.B.04-14	2.A.19-1	Scanner Fault Identifier	0887	007.081 828.281	Optical Technician Electronics Mechanic	
		07	01	2.B.04-4	2.A.19-2	Scanner Fault Identifier	0887	828.281	Electronics Mechanic	, j
		07	01	2.8.04-11	2.A.21-2	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic)
		07	01	2.B.04-16	2.A.23	Polarimeter Fault Identifier	0889	828, 281	Electronics Mechanic	. .
	'	07	01	2.8.04-9	2.A.03-15	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic	ì
		07	01	2.8.04-18	2.A.01-5	Telescope Fault Identifier	0885	828.281		Ŕ
		J 37	"	2.0.04-10	2.A.01-3	researche raust suentifier	0000	020.201	Electronics Mechanic	1
		07	01	2.A.1703	4.C.02	Comerce Fronts 14-1184-51	1	007.081	Optical Technician	ji
		U 07	ן יי ן	2.A.1703	4.0.02	Camera Fault Identifier	0886	828.281	Electronics Mechanic	ł
	1			1	4.C.07		1	007.081	Optical Technician	1
		07	01	2.A.17-4	4.C.02	Camera Fault Identifier	0886	828.281	Electronics Mechanic	
	•	l l		i	4.C.97		l l	007.081	Optical Technician	1
		07	01	2.A.04-2	4.C.92	TV System Fault Identifier	2064	828.281	Electronics Mechanic	l l
		(I	([4.C.37		[007.081	Optical Technician	l
		07	01	2.A.19-1	4.C.72	Scanner Fault Identifier	0887	828.281	Electronics Mechanic	N
		07	01	2.A.19-2	4.C.02	Scanner Fault Identifier	0887	828.281	Electronics rechanic	l l
		07		2.A.12-2	4.0.2	Radiometer Fault Identifier		020.201	Electronics Mechanic	1
	•	07	lői			Radiometer rault identifier		828.281	Electronics Mechanic	4
				2.A.23	4.C. 22	Polarimeter Fault Identifier	0889	828.281	Electronics Mechanic	į,
	,	07	01	2.A.03-15	4.C. 22	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic	
		07	01	2.A.01-5	4.C.72	Telescope Fault Identifier	0885	838.281	Electronics Mechanic	ı
		07	01	2.B.04	4.C.07 4.C.02	Earth Survey C/D Equipment Fault	0000	828.281		
				1	4.C.37	Identifier	0928		Electronics Mechanic	
	· '	26	01	2.A.17-3	2.C.13	Camera Module Remover	0158	007.081	Optical Technician	1
	l ·		\	1	4.0.18		1	003.181	Electrical Technician	1
		26	01	2.A.17-4	2.C.13	Camera Module Remover	0158	007.081	Optical Technician	1
	((.	Į.	(4.D.18	l .	l l	003.181	Electrical Technician	8
	i	26	01	2.A.04-2	2.C.13	TV System Module Remover	0345	007.081	Optical Technician	1
		ll .	}	l	4.D.18		1 55 /5	003.181	Electrical Technician	H
		26	01	2.A.19-1	2.C.13	Scanner Module Remover	0904	003.181	Electrical Technician	1
	·	1	1		4.D.18	The state of the s	0304	003.101	Licotifical lecimitation	1
	,	26	01	2.A.19-2	2.C.13 4.D.18	Scanner Module Remover	0904	003.181	Electrical Technician	
	,	26	01	2.A.21-2	2.C.13	Radiometer Module Remover	0638	003.181	Electrical Technician	
			1	. .	4.0.18			1		1
	1	26	01	2.A.23	2.C.13	Polarimeter Module Remover	0908	003.181	Electrical Technician	
	1	1	1	l]4.D.18	f .	- 1	l		1
	manager of the second of the second	26	01	2.A.03-15	2.C.13 4.D.18	Spectrometer Module Remover	0109-	.003.181	Electrical Technician	
		-4	<u> </u>			<u> </u>		<u></u>	<u></u>	
	ISION NO:	1	ION DA		1	REPARED BY: JHL/GRH/EMW AI		BY: GRH	SERIES ES-1-A PA	GE E0-3-10-1

DISCIPLINE: EARTH RESOURCES] !	FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPERIMENT AREA: Sortie Lab Pay			:	EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 10 - Unscheduled Maintenance	
CREW TASK STATEMENT		OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
8 (Continued)	26 26 26 26 26 26 26 26 26 27 27 27 27 27 27	01 01 01 01 01 01 01 01 01 01 01	2.A.01-5 2.B.04-6 2.B.04-12 2.B.04-13 2.B.04-4 2.B.04-4 2.B.04-16 2.B.04-18 2.B.04-18 2.B.04-12 2.B.04-13 2.B.04-14 2.B.04-11 2.B.04-14	2.C.13 4.D.18 4.D.18 4.	Telescope Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Installer	0187 0926 0926 0926 0926 0926 0926 0926 0927 0927 0927 0927 0927	007.081 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181	Optical Technician Electrical Technician Electronics Mechanic	NO
	27		2.B.04-9 2.B.04-18	2.C.13 4.D.18 2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer	0927	828.281 003.181 828.281 003.181	Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician	
REVISION NO:	REVISI	ON DAT	re:		PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GRI	SERIES ES-1-A PA	GE E0-3-10-2

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortle	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO	1-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	INCTION: 10 - Unscheduled Maintenan	ce
*****	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
	, ,									
8	(Continued)	27	01	2.A.17-3	4.C.02	Camera Module Installer	0160	007.081	Optical Technician	
		27	01	2.A.17-4	4.C.07 4.C.02	Camera Module Installer	0160	003.181 007.081	Electrical Technician Optical Technician	
		27	01.	2.A.04-2	4.C.07 4.C.02	TV System Module Installer	0346	003.181 007.081	Electrical Technician Optical Technician	
		27	01	2.A.19-1	4.C.07 4.C.02	Scanner Module Installer	0905	003.181 003.181	Electrical Technician Electrical Technician	
		27	ł	2.A.19-2	4.C.07 4.C.02	Scanner Module Installer		003.181	Electrical Technician	
		27	01	2.A.21-2	4.C.07 4.C.02	Radiometer Module Installer	i i	003.181	Electrical Technician	
		27	01	2.A.23	4.C.07 4.C.02	Polarimeter Module Installer		003.181	Electrical Technician	
		27	01	2.A.03-15	4.C.07 4.C.02	Spectrometer Module Installer	1	003.181	Electrical Technician	
		27	01	2.A.01-5	4.C.07 4.C.02	Telescope Module Installer	0188	007.081	Optical Technician	·
		28	01	2.B.04-6	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	2065	003.181 828.281	Electrical Technician Electronics Mechanic	
		28	01	2.B.04-12	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	1	003.181 828.281	Electrical Technician Electronics Mechanic	
		28	01	2.B.04-13	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	1	003.181 828.281	Electrical Technician Electronics Mechanic	
		28	01	2.B.04-14	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	2065	003.181	Electrical Technician Electronics Mechanic	
	·	28	01	2.B.04-4	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer		003.181 828.281	Electrical Technician Electronics Mechanic	
		28	01	2.B.04-11	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	2065	003.181	Electrical Technician Electronics Mechanic	
		28		2.B.04-16	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	2065	003.181 828.821	Electrical Technician Electronics Mechanic	
) .	28	01	2.B.04-9	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	2065	003.181	Electrical Technician Electronics Mechanic	
		28	01	2.B.04-18	4.C.07 4.C.02	Earth Survey C/D Equipment Repairer	2065	003.181	Electrical Technician Electronics Mechanic	
		28	1	2.A.17-3	4.C.07 4.C.02	Camera Repairer		003.181	Electrical Technician Electronics Mechanic	
		28	1	2.A.17-4	4.C.07 4.C.02	Camera Repairer	i	007.081	Optical Technician Electronics Mechanic	ļ
					4.C.07		""	007.081	Optical Technician	
		<u> </u>	<u> </u>	<u> </u>						
REV	ISION NO:	REVIS	SION DA	TE:	I	PREPARED BY: JHL/GRH/EMW API	ROVED	BY: GRH	SERIES ES-1-A PA	GE E0-3-10-3

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EC	-3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	JNCTION: 10 - Unscheduled Maintena	nce
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝΟ.	TITLE	NOTE NO.
8	(Continued)	28	01	2.A.04-2	4.C.02 4.C.07	TV System Repairer		828.281 007.081	Electronics Mechanic Optical Technician	
		28		2.A.19-1	4.C.02 4.C.07	Scanner Repairer	ì	828.281	Electronics Mechanic	
		28	01	2.A.19-2	4.C.02 4.C.07	Scanner Repairer		828.281	Electronics Mechanic	į
	,	28	01	2.A.21-2	4.C.02 4.C.07	Radiometer Repairer		828.281	Electronics Mechanic	
		28	01	2.A.23	4.C.02 4.C.07	Polarimeter Repairer	2067	828.281	Electronics Mechanic	
		28	01	2.A.03-15	4.C.02 4.C.07	Spectrometer Repairer	0779	828.281	Electronics Mechanic	
		28	01	2.A.01-5	4.C.02 4.C.07	Telescope Repairer	1193	828.281 007.081	Electronics Mechanic Optical Technician	
33	Perform fault isolation	07	or	2.A.01-5	2.B.04-18 4.C.01 4.C.02 4.C.05	Telescope Fault Identifier	0885	828.281 007.081	Electronics Mechanic Optical Technicial	
		07	01	2.A.03-15	4.C.07 2.B.04-10 4.C.01 4.C.02 4.C.05	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic	
		07	01	2.A.17-3	4.C.07 2.B.04-6 4.C.01 4.C.02 4.C.05	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician	
		07	01	2.A.17-4	4.C.07 2.B.04-12 4.C.01 4.C.02 4.C.05	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician	
		07	01	2.A.19-1	4.C.07 2.B.04-14 4.C.01 4.C.02 4.C.05 4.C.07	Scanner Fault Identifier	0887	828.281	Electronics Mechanic	
		<u> </u>	<u></u>	<u></u>	<u> </u>					
REV	ISION NO:	REVIS	ION DA	ΓE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	SERIES ES-1-A PA	GE E0-3-10-4

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	3		EXPERIMENT:	3.0 Air and Water Pollution		BASIC FU	NCTION: 10 - Unscheduled Mainte	nance
	CREW TASK STATEMENT		OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
33	(Continued)	07	01	2.A.21-2	2.B.04-11 4.C.01 4.C.02	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic	
		07	01	2.A.23	4.C.05 4.C.07 2.B.04-16 4.C.01 4.C.02 4.C.05	Polarimeter Fault Identifier	0889	828.281	Electronics Mechanic	
		07	01	2.A.19-2	4.C.07 2.B.04-4 4.C.01 4.C.02 4.C.05	Scanner Fault Identifier	0887	828.281	Electronics Mechanic	
•		07	01	2.A.04-2	4.C.07 2.B.04-13 4.C.01 4.C.02 4.C.05 4.C.07	TV Camera Fault Identifier	0689	828.281 007.081	Electronics Mechanic Optical Technician	
	· .	07	01	2.B.04	4.C.07 4.C.02 4.C.05 4.C.07	Earth Survey C/D Equipment Fault Identifier	0928	828.281	Electronics Mechanic	
	· .	07	01	4.C.04	4.C.01 4.C.02	Electronic Equipment Fault Identifier	0928	828.281	Electronics Mechanic	
		07	01	4.C.07	4.C.05 4.C.01 4.C.02	Optical Equipment Fault Identifier	0891	007.081	Optical Technician	
						·				
REV	ISION NO:	REVISI	ON DAT	re:		PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A PA	AGEE0-3-10-5

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES

FPE: ES-1-EARTH OBSERVATIONS

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD EO-4

EXPERIMENT: 4.0 RESOURCE LOCATION AND IDENTIFICATION

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	:
EXPE	RIMENT AREA: Sortie Lab Pag	yload EO	-4		EXPERIMENT:	4.0 - Resource Location and Identific	ation	BASIC FU	NCTION: 04 - Experiment Setup	•
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
2	(Continued)	06	01	2.B.04-15	2.A.12-16 2.F.02-3 4.D.08-2 4.D.10	Radar Transmitter Mode Recorder	2105	003.281	Instrumentation.Technician	
	,	06	01	2.8.04-15	2.A.12-17 2.F.02-3 4.D.08-2 4.D.10	Radar Receiver Mode Recorder	2106	003.281	Instrumentation Technician	
3	Observe film remaining status	01 01 01 01	01 01	2.8.04-6 2.8.04-11 2.8.04-12 2.8.04-18	2.A.27-1 2.A.27-3 2.A.27-2 2.A.27-5	Camera Status Monitor Camera Status Monitor Camera Status Monitor Camera Status Monitor	2050 2050	003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
4	Review data taking process to establish observing program	02	01	5.1.01	5.B.02 2.A.01-5 2.B.04-8	Meteorological Conditions Observer	0516	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist	
	·	02 02	01 .	6.A.01-2 3.C.07	1.G.02-11 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Time Elapsed Observer Land Use Data Observer	2051 2107	xxx. xxx 024.081	Special Spaceflight Skill Geophysicist	E0-3
	:	11	01	3.C.07	5.B.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Land Use Data Eyaluator	2108	024.081	Geophysicist	
		11	01	5.1.01	5.B.02 2.A.01-5 2.B.04-18	Meteorological Conditions Evaluator	2057	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist	
		וו	01	6.A.01-1	6.A.01-2 6.A.01-3 6.L.02	Mission Events Evaluator	2058	xxx. xxx	Special Spaceflight Skill'	E0-3
REV	ISION NO:	REVIS	ION DAT	<u>"</u> ГЕ:		PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GF	SERIES ES-1-A PAG	E E0-4-04-2

NO. DESCRIPTION NO. NO. NO. NO. NO. TITLE	DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	arth Observations		MISSION	MODE: A - Shuttle Sortie	
NO. DESCRIPTION NO. NO. NO. NO. TITLE	EXPE	RIMENT AREA: Sortie Lab Pa	yload E0)-4		EXPERIMENT:	4.0 - Resource Location and Identi	fication ·	BASIC FU	UNCTION: 04 - Experiment Setup	
NO. DESCRIPTION NO. PRIMARY SECONDARY TITLE NO. NO. TITLE		CREW TASK STATEMENT			TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
03	NO.	DESCRIPTION	lt i		PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
Telescope with spectral polarimeter 09		Calibrate multispectral	03 03 03 03 03 03 03 14 14 14 14 14 14	01 01 01 01 01 01 01 01 01 01 01	2.A.1704 2.A.04-10 2.A.19-1 2.A.21-2 2.A.23 2.A.03-15 2.A.12-16 2.A.12-17 2.B.04-6 2.B.04-12 2.B.04-14 2.B.04-14 2.B.04-16 2.B.04-15 2.B.04-15	4.D.18 4.D.18 4.D.18 4.D.18 4.D.18 4.D.18 4.D.18 2.A.17-4 2.A.04-2 2.A.19-1 2.A.21-2 2.A.21-2 2.A.23 2.A.03-15 2.A.12-16 2.A.12-17	Camera Inspector Spectrometer Inspector Scanner Inspector Radiometer Inspector Polarimeter Inspector Spectrometer Inspector Radar Transmitter Inspector Radar Receiver Inspector Camera Tester TV System Tester Scanner Tester Radiometer Tester Radiometer Tester Spectrometer Tester Radar Transmitter Tester Radar Receiver Tester Radar Receiver Tester	0833 0828 0829 0831 0833 0932 0933 1448 2060 2061 0641 2062 0040 0613	722.281 722.281 722.281 722.281 722.281 722.281 722.281 003.181 003.181 003.181 003.181 003.181 003.181	Camera Inspector Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician	
13		polarimeter Select data collection	09 13 13 13 13	01 01 01 01 01 01	2.B.04-16 2.B.04-6 2.B.04-12 2.B.04-10 2.B.04-14 2.B.04-11	2.A.23 2.A.17-3 3.C.07 2.A.17-4 3.C.07 2.A.03-13 3.C.07 2.A.19-1 3.C.07 2.A.21-2 3.C.07 2.A.23	Polarimeter Aligner Camera Mode Selector Camera Mode Selector Spectrometer Mode Selector Scanner Mode Selector Radiometer Mode Selector	2063 0271 0271 0267 0916	003.181 710.884 003.181 003.181 024.081 003.181 024.081 003.181 024.081 003.181 003.181	Electrical Technician Calibrator Electrical Technician Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician	

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPER	RIMENT AREA: Sortie Lab Pay	load EO-	4		EXPERIMENT:	4.0 - Resource Location and Identific	cation	BASIC FU	UNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
16	(Continued) Load film in cameras	13 13 13 13 27	01 01 01 01 01	2.8.04-9 2.8.04-18 2.8.04-15 2.8.04-15 2.A.27-1 2.A.27-2	3.C.07 2:A.12-16 3.C:07	Spectrometer Mode Selector Telescope Mode Selector Radar Transmitter Mode Selector Radar Receiver Mode Selector Film Cartridge Installer Film Cartridge Installer	0265 0938 0939 0046	003.181 024.081 003.181 024.081 003.181 024.081 003.181 024.081 003.281	Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Electrical Technician Geophysicist Instrumentation Technician	
34	Perform instrument modification	26 27 26 27 26 27	01 01 01 01 01	2.A.01-5 2.A.01-5 2.A.03-75 2.A.03-15 2.A.17-3	2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13	Telescope Module Remover Telescope Module Installer Spectrometer Module Remover Spectrometer Module Installer Camera Module Remover Camera Module Installer	0188 0109 0110 0158	007.081 003.181 007.081 003.181 003.181 003.181 007.081 003.181	Optical Technician Electrical Technician Optical Technician Electrical Technician Electrical Technician Electrical Technician Optical Technician Electrical Technician Optical Technician Optical Technician Optical Technician	
		26 27 26 27 26 27	01 01 01 01 01	2.A.17-4 2.A.17-4 2.A.19-1 2.A.19-1 2.A.21-2 2.A.21-2	4.0.18 2.C.13 4.0.18 2.C.13 4.0.18 2.C.13 4.0.18 2.C.13 4.0.18 2.C.13 4.0.18 2.C.13 4.0.18 2.C.13	Camera Module Remover Camera Module Installer Scanner Module Remover Scanner Module Installer Radiometer Module Remover Radiometer Module Installer	0158 0160 0904 0905 0638	003.181 007.081 003.181 007.081 003.181 003.181 003.181 003.181	Electrical Technician Optical Technician Optical Technician Electrical Technician	
REVI	ISION NO:	REVIS	ION DA	re:	l I	PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GR	H SERIES ES-1-A PA	GE E0-4-04-4

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 I	arth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO	-4		EXPERIMENT:	4.0 - Resource Location and Identification	ation	BASIC FU	INCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEF	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
34	(Continued)	26		2.A.23	2.C.13 4.D.18	Polarimeter Module Remover	0908	003.181	Electrical Technician	
	}	27	1	2.A.23	2.C.13 4.D.18	Polarimeter Module Installer	0909	003.181	Electrical Technician	
	· .	26	01	4.B.01-3	2.C.13 4.D.18	Computer Module Remover	0519	003.181	Electrical Technician	
		27	01	4.B.01-3	2.C.13 4.D.18	Computer Module Installer	0520	003.181	Electrical Technician	
į		26	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
		27	01	2.8.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician	
		26	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
		27	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equipment Module	0927	003.181	Electrical Technician	·
	•	26	01	2.B.04-6	2.C.13	Installer Earth Survey C/D Equipment Module	0926	003.181	Electrical Technician	
		27	01	2.B.04-6	4.D.18 2.C.13	Remover Earth Survey C/D Equipment Module	0927	003.181	Electrical Technician	
		26	01	2.B.04-12	4.D.18 2.C.13	Installer Earth Survey C/D Equipment Module	0926	003.181	Electrical Technician	
	,	27	01	2.B.04-12	4.D.18 2.C.13	Remover Earth Survey C/D Equipment Module	0927	003.181	Electrical Technician	
		26	01	2.B.04-14	4.D.18 2.C.13	Installer Earth Survey C/D Equipment Module	0926	003.181	Electrical Technician	
	· ·	27	01	2.B.04-14	4.D.18 2.C.13	Remover Earth Survey C/D Equipment Module	0927	003.181	Electrical Technician	
		26	01	2.B.04-11	4.D.18 2.C.13	Installer Earth Survey C/D Equipment Module	0926	003.181	Electrical Technician	
	,	27	01	2.8.04-11	4.D.18 2.C.13	Remover Earth Survey C/D Equipment Module	0927	003.181	Electrical Technician	
		26	01	2.B.04-16		Installer Earth Survey C/D Equipment Module	0926	003.181	Electrical Technician	
		27	01	2.8.04-16	4.D.18 2.C.13	Remover Earth Survey C/D Equipment Module	0927	003.181	Electrical Technician	
	•	26	l .	2.B.04-13	4.D.18	Installer Earth Survey C/D Equipment Module	0926	003.181	Electrical Technician	1
		27	01	2.B.04-13	4.D.18	Remover Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician	
			<u> </u>							
REV	SION NO:	REVIS	ION DA	re:	I	PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A PA	GE E0-4-04-5

EA: Sortie Lab K STATEMENT ESCRIPTION	ATEMENT	CREW C	OPER . TA	ASK DEPEN	XPERIMENT: NDENCY NO. SECONDARY	4.0 - Resource Location and Identifi TASK - SKILL TITLE	cation NO.		NCTION: 04 - Experiment Setup PRIMARY OCCUPATIONAL SKILL	REFERENCI
ESCRIPTION		FUNCT. E	ENVIR. PI				I NO		PRIMARY OCCUPATIONAL SKILL	
4	IPTION	NO.	NO. PI	RIMARY	SECONDARY	TITLE	NIC			NICOTAL PROPERTY.
ed)		26	01 2.1	.	i l		NO.	NO.	TITLE	NOTE NO.
		27 26 27 26 27 26 27	01 2.1 01 2.1 01 2.1 01 2.1 01 2.1	.8.04-10 .A.03-13 .A.03-13 .A.12-16 .A.12-16 .A.12-17	2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module Installer Spectrometer Module Remover Spectrometer Module Installer Radar Transmitter Module Remover Radar Transmitter Module Installer Radar Receiver Module Remover Radar Receiver Module Installer	0926 0927 0109 0110 0615 0616	003.181 003.181 003.181 003.181 003.181 003.181 003.181	Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician	NO.
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		:								

DISCI	PLINE: EARTH RESOURCES]	FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload E)-4	1:	EXPERIMENT:	4.0 - Resource Location and Identific	ation	BASIC FU	ONCTION: 05 - Experiment Shutdon	wn
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
27	Shutdown sensors	16 16 16 16 16 16 16 16	01 01 01 01 01 01	2.B.04-6 2.B.04-12 2.B.04-14 2.B.04-16 2.B.04-9 2.B.04-10 2.B.04-18 2.B.04-15 2.B.04-15	2.A.17-3 2.A.17-4 2.A.19-1 2.A.21-2 2.A.23 2.A.03-15 2.A.03-13 2.A.01-5 2.A.12-16 2.A.12-17	Camera Control Deactuator Camera Control Deactuator Scanner Control Deactuator Radiometer Control Deactuator Polarimeter Control Deactuator Spectrometer Control Deactuator Spectrometer Control Deactuator Telescope Control Deactuator Radar Transmitter Control Deactuator Radar Receiver Control Deactuator	0848 0848 0849 0673 0919 0409 0409 0320 0664 0666	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
29	Package data for earth return	17 17		2.A.27-1 2.A.27-2	4.A.04 4.D.20 4.D.04-1 4.A.04	Film Stower Film Stower		000.000 .	General Technical Skill General Technical Skill	
		17	01	2.A.27-3	4.D.20 4.D.04-1 4.D.04-1 4.D.20	Film Stower	0852	000.000	General Technical Skill	
		17	01	2.A.27-5	4.D.04-1 4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill	
30	Clean and service optics	19	01	2.A.01-5	4.D.06 4.D.18 2.C.13	Telescope Optics Cleaner	0004	003.281	Instrumentation Technician	
		19	01	2.A.03-15	4.D.06 4.D.18 2.C.13	Spectrometer Optics Cleaner	0095	003.281	Instrumentation Technician	
		19	01	2.A.17-3	4.D.06 4.D.18 2.C.13	Camera Optics Cleaner	0097	003.281	Instrumentation Technician	
		19	01	2.A.17-4	4.D.06 4.D.18 2.C.13	Camera Optics Cleaner	0097	003.281	Instrumentation Technician	·
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GR	H SERIES ES-1-A	PAGEE0-4-05-1

DISCI	PLINE: EARTH RESOURCES			1	PPE: ES-1 Ea	rth Observations		MISS	SSION MODE: A -	Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Pa	ayload EO-	-4	1	EXPERIMENT:	4.0 - Resource Location	and Identificatio	n BAS	SIC FUNCTION: 05	i - Experiment Shutd	Ov:n	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SK	LL		PRIMARY OC	CUPATIONAL SKILL		REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	N	0. N	NO.	TITLE		NOTE NO.
30	(Continued)	. 19	01	2.A.19-1	4.D.06 4.D.18	Scanner Optics Cleaner	08	884 003.	3.281 Instrumer	tation Technician		
		19	01	2.A.21-2	2.C.13 4.D.05 4.D.18	Radiometer Optics Cleane	r 09	24 003.	3.281 Instrumer	ntation Technician		
		19	01	2.A.23	4.D.05 4.D.18 2.C.13 4.D.06 4.D.18 2.C.13	Polarimeter Optics Clear	er 09	003.	3.281 Instrumer	ntation Technician		
							·					
										•		
		_	<u> </u>	<u></u>	<u> </u>							
REV	ISION NO:	REVIS	SION DA	re:		PREPARED BY: JHL/GRH,	EMW APPROV	ED BY:	GRH	SERIES ES-1-A	PAGE	E0-4-05-2

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations	```	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EC)-4 ·		EXPERIMENT:	4.0 - Resource Location and Identif	fication	BASIC FU	UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
1	Observe settings on sensors	01 01 01 01 01 01 01 01	01 01 01 01 01 01	2.B.04-6 2.B.04-4 2.B.04-11 2.B.04-16 2.B.04-18 2.B.04-12 2.B.04-12 2.B.04-15 2.B.04-15	2.A.17-3 2.A.19-1 2.A.21-2 2.A.23 2.A.03-15- 2.A.01-5 2.A.1704 2.A.03-13 2.A.12-16 2.A.12-17	Camera Mode Monitor Scanner Mode Monitor Radiometer Mode Monitor Polarimeter Mode Monitor Spectrometer Mode Monitor Telescope Mode Monitor Camera Mode Monitor Spectrometer Mode Monitor Radar Transmitter Mode Monitor Radar Receiver Mode Monitor	0204 0209 0644 0653 0787 0942 0204 0787 2103 2104	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
2	Record bandsettings, look angles, exposures, filters, etc.	06	01	2.8.04-18	2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Telescope Mode Recorder	0943	003.281	Instrumentation Technician	
		06 06	01	2.B.04-10 2.B.04-4	2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10 2.A.15-1	Spectrometer Mode Recorder Scanner Mode Recorder		003.281	Instrumentation Technician	
		06	01	2.B.04-11	2.A.15-2 2.F.02-3 4.D.08-2 4.D.10 2.A.15-1 2.A.15-2 2.F.02-3	Radiometer Mode Recorder		003.281	Instrumentation Technician	
	·	06	01	2.8.04-16	4.D.08-2 4.D.10	Polarimeter Mode Recorder	2048	003.281	Instrumentation Technician	
-							,			
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: JHL/GRH/EMW A	APPROVED	BY: GRI	H SERIES ES-1-A PA	GE E0-4-06-1

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	oad EO-4			EXPERIMENT:	4.0 - Resource Location and Identific	ation .	BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMĄRY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
2	(Continued)	06 06		2.8.04-15 2.8.04-15	2.F.02-3 4.D.08-2 4.D.10 2.A.12-17	Radar Transmitter Mode Recorder Radar Receiver Mode Recorder	2105 2106	003.281	Instrumentation Technician Instrumentation Technician	
3	Observe film remaining status	01 01 01 01	01 01 01	2.B.04-6 2.B.04-11 2.B.04-12 2.B.04-18	2.F.02-3 4.D.08-2 4.D.10 2.A.27-1 2.A.27-3 2.A.27-2	Camera Status Monitor Camera Status Monitor Camera Status Monitor Camera Status Monitor	2050 2050	003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
9	Identify land use data sources	02	01	2.B.04-18	3.C.07 2.A.14 2.A.15 2.A.28	Telescope Presentation Observer	0895	024.081	Geophysicist	
		02	01	2.B.04-15	2.E.05 2.A.12-15 2.A.12-17 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Radar Presentation Observer	0934	024.081	Geophysicist	
		02	01	2.8.04-14		Scanner Presentation Observer	0897	024.081	Geophysicist	
		02	01	2.8.04-10		Spectrometer Presentation Observer	0915	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: JHL/GRH/EMW API	PROVED	BY: GR	H SERIES ES-1-A PAG	E E0-4-06-2

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab	Payload EC)-4		EXPERIMENT:	4.0 - Resource Location and Identif	fication	BASIC FU	JNCTION: 06 - Experiment Conduc	t
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEF	PENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
9	(Continued)	02	01	2.8.04-11	3.C.07 2.A.14	Radiometer Presentation Observer	0898	024.081	Geophysicist	
•		02	01	2.8.04-15	3.C.07 2.A.14 2.A.15	Polarimeter Presentation Observer	0914	024.081	Geophysicist	
	,	02	01	2.B.04 - 9	2.A.28 2.E.05 2.A.03-15 3.C.07 2.A.14 2.A.15	Spectrometer Presentation Observer	0915	024.081	Geophysicist	
		04	01	2.B.04-15	2.A.28 2.E.05	Radar Data Classifier	2109	024.081	Geophysicist	
		04	01	2.B.04-14	2.A.28 2.E.05 2.A.19-1 3.C.07	Scanner Data Classifier	2077	024.081	Geophysicist	
		04	01	2.8.04-11	2.A.15 2.A.28 2.E.05 2.A.21-2 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Radiometer Data Classifier	2078	024.081	Geophysicist	
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: JHL/GRH/EMW A	APPROVED	BY: G	RH SERIES ES-1-A	PAGE E0-4-06-

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	rth Observations		MISSION N	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO-	-4	1	EXPERIMENT:	4.0 - Resource Location and Iden	tification	BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
9	(Continued)	04	01	2.8.04-16	2.A.23 3.C.07 2.A.14 2.A.15 2.A.28	Polarimeter Data Classifier	2079	024.081	Geophysicist	
		04	01	2.B.04-9	2.E.05 2.A.03-15 3.C.07 2.A.14 2.A.15 2.A.28	Spectrometer Data Classifier	2080	024.081	Geophysicist	
		04	01	2.8.04-10	2.E.05 2.A.03-13 3.C.07 2.A.14 2.A.15 2.A.28	Spectrometer Data Classifier	2080	024.081	Geophysicist	
		04	01	2.8.04-18	2.E.05 2.A.01-5 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Telescope Data Classifier	2110	024.081	Geophysicist	
10	Collect land use data	15	01	2.B.04-6	2.A.17-3 3.C.07 2.A.15	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.B.04-12	4.D.10 2.A.17-4 3.C.07 2.A.15 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.8.04-14	2.A.19-1 3.C.07 2.A.15 4.D.10	Scanner Control Actuator	0842	003.281	Instrumentation Technician	
		15	01	2.8.04-15	2.A.12-15 3.C.07 2.A.15 4.D.10	Radar Transmitter Actuator	0935	003.281	Instrumentation Technician	
		15	01	2.B.04-15		Radar Receiver Actuator	0936	003.281	Instrumentation Technician	
REV	ISION NO:	REVI	SION DA	TE:	2.A.15 4.D.10	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PA	GE E0-4-06-4

DISCI	PLINE: EARTH RESOURCES				FPE: E\$-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	load EO-	4		EXPERIMENT:	4.0 - Resource Location and Identi	ification	BASIC FU	UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEF	PENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
10	(Continued)	15	01	2.B.04-11	3.C.07 2.A.15	Radiometer Control Actuator	0843	003.281	Instrumentation Technician	
		15	01-	2.B.04-10	3.C.07 2.A.15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician	
		15	01	2.B.04-16	3.C.07 2.A.15	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician	
		15	01	2.8.04-9	4.0.10 2.A.03-15 3.C.07 2.A.15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician	
		15	01	2.B.04-18	4.D.10 2.A.01-5 3.C.07 2.A.15 4.D.10	Telescope Control Actuator	0846	003.281	Instrumentation Technician	
11	Identify resource analysis targets	02	01	2.8.04-15	2.A.12-16 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6	Radar Presentation Observer	0934	024.081	Geophysicist	
		02	01	2.8.04-14	2.B.04-12 2.A.19-1 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Presentation Observer	0897	024.081	Geophysicist	
-			1							
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	H SERIES ES-1-A PAG	GE E0-4-06-5

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	4		EXPERIMENT:	4.0 - Resource Location and Ident	fication	BASIC FU	UNCTION: 06 Experiment Conduct	
·	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT. NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
11	(Continued)	02	01	2.8.04-11	2.A.21-2 3.C.07 2.A.14 2.A.15	Radiometer Presentation Observer	0898	024.081	Geophysicist	
		02	01	2.8.04-16	2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.23 3.C.07 2.A.14 2.A.15	Polarimeter Presentation Observer	0914	024.081	Geophysicist	
		02	01	2.8.04-9	2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.03-15 3.C.07 2.A.14 2.A.15	Spectrometer Presentation Observe	r 0915	024.081	Geophysicist	
		02	01	2.B.04-10	2. A. 14 2. A. 15 2. A. 27 2. E. 05 2. B. 04-6 2. B. 04-12 2. A. 03-13 3. C. 07 2. A. 14 2. A. 15 2. A. 27 2. E. 05 2. B. 04-6	Spectrometer Presentation Observe	r 0915	024.081	Geophysicist	
		04	01	2.8.04-14	12.8.04-12	Scanner Data Classifier	2077	024.081	Geophysicist	
					2.E.05 2.B.04-6 2.B.04-12					
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRI	series ES-1-A	PAGE E0-4-06-6

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	-4		EXPERIMENT:	4.0 - Resource Location and Ident	tification	BASIC FU	JNCTION: 06 Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
11	(Continued)	04	01	2.B.04-11	2.A.21-2 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05	Radiometer Data Classifier	2078	024.081	Geophysicist	
		04	01	2.B.04-16	2.B.04-6 2.B.04-12	Polarimeter Data Classifier	2079	024.081	Geophysicist	
		04	01	2.B.04-9	2.A.27 2.E.05 2.B.04-6 2.B.04-12 2.A.03-15 3.C.07 2.A.14 2.A.15 2.A.27	Spectrometer Data Classifier	2080	024.081	Geophysicist	
		04	01	2.B.04-9	2.E.05 2.B.04-6 2.B.04-12 2.A.03-13 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05	Spectrometer Data Classifier	2080	024.081	Geophysicist	
		04	01	2.B.04-15	2.B.04-6 2.B.04-12	Radar Data Classifier	2109	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DA	re:	- 	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A	AGE E0-4-06-7

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	ayload EO	-4		EXPERIMENT:	4.0 - Resource Location and Identifi	cation	BASIC FU	ONCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL		Ì	PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
12	Record land use mapping data	15	01	2.B.04-6	2.A.17-3 3.C.07 2.A.15	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.B.04-12	3.C.07 2.A.15	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.B.04-14	3.C.07 2.A.15	Scanner Control Actuator	0842	003.281	Instrumentation Technician	
	·	15	01	2.B.04-15	3.C.07 2.A.15	Radar Transmitter Control Actuator	0935	003.281	Instrumentation Technician	
		15	01	2.B.04-15	3.C.07 2.A.15	Radar Receiver Control Actuator	0936	003.281	Instrumentation Technician	
		15	01	2.B.04-11	3.C.07 2.A.15	Radiometer Control Actuator	0843	003.281	Instrumentation Technician	
		15	01	2.B.04-10	3.C.07 2.A.15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician	
		15	01	2.B.04-16	3.C.07 2.A.15	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician	
		15	01	2.8.04-0	4.D.10 2.A.03-15 3.C.07 2.A.15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician	
		15	01	2.8.04-18	4.D.10 2.A.01-5 3.C.07 2.A.15 4.D.10	Telescope Control Actuator	0846	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	SION DA	re:	<u>l</u>	PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GRH	SERIES ES-1-A PA	GE E0-4-06-8

DISC	PLINE: EARTH RESOURCES				FPE: ES-1 Eart	h Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	-4		EXPERIMENT:	4.0 - Resource Location and Identifica	tion	BASIC FU	NCTION: 06 - Experiment Conduct	
,	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
13	Determine if standard sensors are adequate due to weather conditions	04	01	2.A.19-1	2.B.04-14 3.C.07 5.B.02 5.I.01	Scanner Adequacy Determiner	2088	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
		04	10	2.A.03-13	2.B.04-10 3.C.07 5.B.02	Spectrometer Adequacy Determiner	2111	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
		04	01	2.A.21-2	5.I.01 2.B.04-11 3.C.07 5.B.02 5.I.01	Radiometer Adequacy Determiner	2090	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
	·	. 04	01	2.A.23	2.B.04-16 3.C.07 5.B.02 5.I.01	Polarimeter Adequacy Determiner	2091	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
		04	01	2.A.01-5	2.B.04-18 2.B.09 3.C.07 5.B.02	Telescope Adequacy Determiner	2092	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
		04	01	2.A.17-3	5.I.01 2.B.04-6 2.B.09 2.A.27 3.C.07 5.B.02	Camera Adequacy Determiner	2093	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
		04	01	2.A.17-4	5.I.01 2.B.04-12 2.B.09 2.A.27 3.C.07 5.B.02	Camera Adequacy Determiner	2093	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
		04	01	2.A.12-16	5. I.01 2. B.04-15 3. C.07 5. B.02	Radar Transmitter Adequacy Determiner	2112	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
		04	01	2.A.12-17	5.I.01 2.8.04-15 3.C.07 5.B.02 5.I.01	Radar Receiver Adequacy Determiner	2113	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
REV	ISION NO:	REVIS	ION DAT	II	p	REPARED BY: JHL/GRH/EMW APPI	ROVED	BY: GR	H SERIES ES-1-A PAGE	E0-4-06-9

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	th Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	-4		EXPERIMENT:	4.0 - Resource Location and Identifi	cation	BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEF	ENDENCY NO.	TASK - SKILL		Ì	PRIMARY OCCUPATIONAL SKILL	REFERENCE
ΝО.	DESCRIPTION	FUNCT. NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
13	(Continued)	04	01	2.A.03-15	2.B.04-9 3.C.07 5.B.02 5.I.01	Spectrometer Adequacy Determiner		024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist	
14	Record ocean resources data	. 15	01	2.B.04-6	2.A.17-3 3.C.07 2.A.15	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.B.04-12	4.D.10 2.A.17-4 3.C.07 2.A.15	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		15	01	2.8.04-14	3.C.07 2.A.15	Scanner Control Actuator	0842	003.281	Instrumentation Technician	
		15	01	2.B.04-15	3.C.07 2.A.15	Radar Transmitter Control Actuator	0935	003.281	Instrumentation Technician	
		15	01	2.B.04-15	3.C.07 2.A.15	Radar Receiver Control Actuator	0936	003.281	Instrumentation Technician	
		15	01	2.B.04-11	3.C.07 2.A.15	Radiometer Control Actuator	0843	003.281	Instrumentation Technician	
		15	01	2.B.04-10	3.C.07 2.A.15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician	
,		15	01	2.B.04-16	3.C.07 2.A.15	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician	
		15	01	2.8.04-9	4.D.10 2.A.03-15 3.C.07 2.A.15 4.D.10	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	SION DAT	ΓE: ,	P	REPARED BY: JHL/GRH/EMW AP	PROVED	BY: GR	SERIES ES-1-A PAG	GE E0-4-06-10

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	4		EXPERIMENT:	4.0 - Resource Location and Identific	ation	BASIC FU	INCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
14	(Continued)	15	01	2.8.04-18	2.A.01-5 3.C.07 2.A.15 4.D.10	Telescope Control Actuator	0846	003.281	Instrumentation Technician	T. C.
15	Activate sensors	15 15 15 15 15 15 15 15	01 01 01 01 01 01 01 01 01	2.B.04-6 2.B.04-12 2.B.04-14 2.B.04-15 2.B.04-15 2.B.04-10 2.B.04-10 2.B.04-16 2.B.04-18	2.A.17-3 2.A.17-4 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.03-13 2.A.23 2.A.03-15 2.A.01-5	Camera Control Actuator Camera Control Actuator Scanner Control Actuator Radar Transmitter Control Actuator Radar Receiver Control Actuator Radiometer Control Actuator Spectrometer Control Actuator Polarimeter Control Actuator Spectrometer Control Actuator Telescope Control Actuator	0245 0842 0935 0936 0843 0036 0844 0036	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
17	Monitor data collection process	01	01	2.B.04-6	2.F.01 2.F.03 4.B.01-2	Camera Operation Monitor	1344	003.281	Instrumentation Technician	
		01	01	2.8.04-12	2.F.01 2.F.03 4.B.01-2	Camera Operation Monitor		003.281	Instrumentation Technician	
		01	01	2.B.04-14 2.B.04-15	2.F.01 2.F.03 4.B.01-2 2.F.01	Scanner Operation Monitor Radar Operation Monitor		003.281 003.281	Instrumentation Technician Instrumentation Technician	
		01	01	2.B.04-11	2.F.03 4.B.01-2 2.F.01 2.F.03	Radiometer Operation Monitor		003.281	Instrumentation Technician	
		01	01	2.B.04-10	4.B.01-2 2.F.01 2.F.03	Spectrometer Operation Monitor	2098	003.281	Instrumentation Technician	
		10	01	2.B.04-16	2.F.03	Polarimeter Operation Monitor	2097	003.281	Instrumentation Technician	
		01	01	2.B.04-9	4.B.01-2 2.F.01 2.F.03 4.B.01-2	Spectrometer Operation Monitor	2098	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	ION DA	TE:	F	PREPARED BY: JHL/GRH/EMW APE	ROVED	BY: GR	H SERIES ES-1-A PAC	GE E0-4-06-11

	RIMENT AREA: Sortie Lab Pay CREW TASK STATEMENT	load EO-	4	1,			FPE: ES-1 Earth Observation M					
	CREW TASK STATEMENT				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
NO		CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL		PRIMARY OCCUPATIONAL SKILL REFEREN				
.,,,,,	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	· TITLE	NOTE NO.		
17	(Continued)	01	01	2.8.04-18	2.F.01 2.F.03 4.B.01-2	Telescope Operation Monitor	2099	003.281	Instrumentation Technician			
19	Review data collected for quality and usefulness	11	01	3.C.07	2.F.03-2 2.F.03-3 2.A.27-4 2.A.10-1 2.A.21-2 2.A.23 2.A.03-15 2.B.09 2.F.02-5 2.A.03-13 2.A.12-16 2.A.12-17	Land Use Data Evaluator	2108	024.081	Geophysicist			
20	Identify irrelevant data	04	01	3.C.07	2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.23 2.A.03-15 2.B.09 2.A.03-13 2.A.12-15 2.A.12-17	Land Use Data Classifier	2115	024.081	Geophysicist			
21.	Process film	06	01	4.B.08	2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-4 2.A.27-5	Film Processor	0328	976.782	Film Developer	E0-2		
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PAG	E E0-4-06-12		

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION I	MODE: A - Shuttle Sortie			
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	-4		EXPERIMENT: 4.0 - Resource Location and Identification			BASIC FU	BASIC FUNCTION: 06 - Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
22	Evaluate photographic/ cartographic quality of data	11	01	2.8.09	3.C.07 2.A.17-3 2.A.17-4	Video Data Quality Evaluator	2102	024.081	Geophysicist			
23	Develop motion and still photographs taken in the land use experiment	06	01	4.B.08 .	2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-4 2.A.27-5	Film Processor	0328	976.782	Film Developer	E0-2		
24	Verify landmarks in resource and land use observations	02	01	3.C.07	2.8.09 2.A.01-5 2.8.04-18 2.8.09 2.A.01-5 2.8.04-18 2.F.02-4	Earth Surface Landmark Observer Earth Surface Landmark Classifier	2116	,	Geophysicist Geophysicist			
			<u></u>									
REV	REVISION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	SERIES ES-1-A	PAGE E0-4-06-13		

DISCI	PLINE: EARTH RESOURCES			1	PE: ES-1 Ear	rth Observations		MISSION MODE: A - Shuttle Sortie			
EXPE	RUMENT AREA: Sortie Lab Pa	yload E	0-4	1	EXPERIMENT: 4.0 - Resource Location and Identification			BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note E0-1)			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.	
8	Replace/repair any	26	01	2.A.17-3	2.C.13	Camera Module Remover	0158	007.081	Optical Technician		
	malfunctioning components	-26	01	2.A.17-4	4.D.18 2.C.13 4.D.18	Camera Module Remover	0158	003.181 007.081 003.181	Electrical Technician Optical Technician		
		26	01	2.A.12-16	2.C.13 4.D.18	Radar Transmitter Module Remover	0615	003.181	Electrical Technician Electrical Technician		
		26	01	2.A.12-17	2.C.13 4.D.18	Radar Receiver Module Remover	0624	003.181	Electrical Technician		
		26	01	2.A.19-1	2.C.13 4.D.18	Scanner Module Remover		1	Electrical Technician		
		26	01	2.A.21-2	2.C.13 4.D.18	Radiometer Module Remover		003.181	Electrical Technician		
		26	01	2.A.23	2.C.13 4.D.18	Polarimeter Module Remover	0908		Electrical Technician		
		26 26	01	2.A.03-15 2.A.03-13	2.C.13 4.D.18 2.C.13	Spectrometer Module Remover	0109	003.818	Electrical Technician		
		26	01	2.A.01-5	4.D.18 2.C.13	Spectrometer Module Remover Telescope Module Remover	0109	003.181	Electrical Technician Electrical Technician		
		26	01	2.8.04-6	4.D.18 2.C.13	Earth Survey C/D Equipment Module	0926	007.081 828.281	Optical Technician Electronics Mechanic		
}		26	01	2.B.04-12	4.D.18 2.C.13	Remover Earth Survey C/D Equipment Module	0926	003.181 003.181	Electrical Technician Electrical Technician		
		26	01	2.B.04-10	4.D.18 2.C.13	Remover Earth Survey C/D Equipment Module	0926	003.181	Electrical Technician		
		26	01	2.B.04-13	4.D.18 2.C.13 4.D.18	Remover Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
	}	26	01	2.B.04-15	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.8.04-16	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	l	Electrical Technician		
		26 26	01	2.B.04-9 2.B.04-18	2.C.13 4.D.18 2.C.13	Earth Survey C/D Equipment Module Remover Earth Survey C/D Equipment Module	0926	003.181 003.181	Electrical Technician Electrical Technician		
			"	2.5.57-10	4.D.18	Remover	10320	003.101	Liectical leconfician		
					<u> </u>	No constant					
REV	ISION NO:	REVIS	SION DA	re:	F	REPARED BY: JHL/GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A	PAGE E0-4-10-1	

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-			EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance			
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	EPENDENCY NO. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL REFERENCE NOTE				
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
8	(Continued)	27 27 27 27 27 27 27 27 27 27 27 27 27 2	01 01 01 01 01 01 01 01 01 01 01 01	2.8.04-6 2.8.04-12 2.8.04-13 2.8.04-15 2.8.04-14 2.8.04-16 2.8.04-18 2.8.04-18 2.8.04-10 2.A.17-3 2.A.17-4 2.A.03-13 2.A.12-16 2.A.12-17 2.A.21-2 2.A.23 2.A.03-15 2.A.01-5	4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.13 4.D.18 2.C.02 4.C.07 4.C.02 4.C.07	Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Earth Survey C/D Equipment Module Installer Camera Module Installer Camera Module Installer Spectrometer Module Installer Radar Transmitter Module Installer Radar Receiver Module Installer Radiometer Module Installer Polarimeter Module Installer Spectrometer Module Installer Telescope Module Installer	0927 0927 0927 0927 0927 0927 0160 0110 0905 0616 0623 0637 0909 0110 0188	828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 007.081 007.081 003.181 003.181 003.181 003.181 003.181 003.181	Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electrical Technician Optical Technician Electrical Technician			
REVI	SION NO:	REVIS	ION DA	ľE:		PREPARED BY: JHL/GRH/EMW API	PROVED	BY: GRH	SERIES ES-1-A PA	GE E0-4-10-2		

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab P	ayload EO-	-4	ļ	EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
8	(Continued)	28 28 28 28 28 28 28 28 28 28 28 28 28 2	01 01 01 01 01 01 01 01 01	2.B.04-6 2.B.04-13 2.B.04-15 2.B.04-14 2.B.04-16 2.B.04-16 2.B.04-9 2.B.04-18 2.A.17-3 2.A.17-4 2.A.12-16 2.A.12-17 2.A.21-2 2.A.23 2.A.03-15 2.A.03-13 2.A.01-5	4.C.07 4.C.02 4.C.07 4.C.07 4.C.02 4.C.07	Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Earth Survey C/D Equipment Repairer Camera Repairer Camera Repairer Radar Transmitter Repairer Radar Receiver Repairer Scanner Repairer Radiometer Repairer Polarimeter Repairer Spectrometer Repairer Spectrometer Repairer Telescope Repairer	2065 2065 2065 2065 2065 2065 2065 2065	828.181 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electrical Technician Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Optical Technician Electronics Mechanic Optical Technician Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic			
REV	ISION NO:	REVIS	SION DA'	re:		PREPARED BY: JHL/GRH/EMW \ APR	ROVED	BY: GRH	SERIES ES-1-A P.	AGE E0-4-10-3		

FUNCT. ENVIR.	DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	rth Observations		MISSION MODE: A - Shuttle Sortie				
NO. DESCRIPTION NO. NO	EXPE	RIMENT AREA: Sortie Lab Pa	yload EO-	4		EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance			
NO. DESCRIPTION NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE	CREW TASK STATEMENT		11		TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC		
1	NO.	DESCRIPTION '	41		PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
07	31	Perform fault isolation	07	01	2.A.O1-5	4.C.01 4.C.02	Telescope Fault Identifier	0885	828.281 007.081				
07		·	07	01	2.A.03-15	4.C.07 2.B.04-10 4.C.01 4.C.02 4.C.05	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic			
07	•		07	01	2.A.17-3	4.C.07 2.B.04-6 4.C.01 4.C.02 4.C.05	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician			
07		:	07	01	2.A.17-4	2.B.04-12 4.C.01 4.C.02 4.C.05	Camera Fault Identifier	0886					
07 01 2.A.21-2 2.B.04-11 Radiometer Fault Identifier 0691 828.281 Electronics Mechanic 4.C.01 4.C.02 4.C.05 4.C.07 2.B.04-16 4.C.01 4.C.02 4.C.05 4.C.05 4.C.05 4.C.05 4.C.05 4.C.05 4.C.05 4.C.07 2.B.04-10 4.C.02 4.C.07 2.B.04-10 4.C.02 4.C.07 2.B.04-10 4.C.02 4.C.02 4.C.02 4.C.05	·	07	01	2.A.19-1	2.8.04-14 4.C.01 4.C.02 4.C.05	Scanner Fault Identifier	0887	828.281	Electronics Mechanic				
07 01 2.A.23 2.B.04-16 4.C.01 4.C.02 4.C.05 4.C.07 2.B.04-10 4.C.02 4.C.07 2.B.04-10 4.C.02 4.C.05 4.C.02 4.C.05 4.C.05			07	01	2.A.21-2	2.B.04-11 4.C.01 4.C.02 4.C.05	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic			
07 01 2.A.03-13 2.B.04-10 Spectrometer Fault Identifier 0038 828.281 Electronics Mechanic 4.C.01 4.C.02 4.C.05		·	07	01	2.A.23	2.8.04-16 4.C.01 4.C.02 4.C.05	Polarimeter Fault Identifier	0889	828.281	Electronics Mechanic			
		t		01	2.A.03-13	4.C.07 2.B.04-10 4.C.01 4.C.02 4.C.05	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic			
REVISION NO: REVISION DATE: PREPARED BY: JHL/GRH/EMW APPROVED BY: GRH SERIES ES-1-A PAGE E0-4	40.077			<u> </u>		<u> </u>	DESTANDED BY MILLION ASSESSMENT	A BBB OVER		convoc ES 1 A	PAGE E0-4-10-4		

DISC	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pa	yload EC)-4		EXPERIMENT: 4.0 - Resources Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
NO.	DESCRIPTION	.NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
31	(Continued)	07	01	2.A.04-15	2.A.12-16 4.C.01 4.C.02 4.C.05	Radar Transmitter Fault Identifier	0683	828.281	Electronics Mechanic			
		07	01	2.A.04-15	4.C.07 2.A.12-17 4.C.01 4.C.02	Radar Receiver Fault Identifier	0685	828.281	Electronics Mechanic			
		07	01	2.8.04	4.C.05 4.C.07 4.C.01 4.C.02 4.C.05	Earth Survey C/D Equipment Fault Identifier	0928	828.281	Electronics Mechanic			
		07	10	4.C.O4	4.C.07 4.C.01 4.C.02 4.C.05 4.C.07	Electronic Equipment Fault Identifier	0795	828.281	Electronics Mechanic			
		07	01	4.C.07	4.C.01 4.C.02 4.C.05	Optical Equipment Fault Identifier	0891.	007.081	Optical Technician			
REV	ISION NO:	REVIS	ION DA	TE:	_ <u></u>	PREPARED BY: \ JHL/GRH/EMW APP	ROVED	BY: GRI	series ES-1-A	PAGE E0-4-10-5		

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES

FPE: ES-1-EARTH OBSERVATIONS

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD EO-5

EXPERIMENT: 5.0 NATURAL DISASTER ASSESSMENT

DISCIP	PLINE: EARTH RESOURCES			F	FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPER	RIMENT AREA: Sortie Lab Pay	load EO-	5	F	EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT CREW OPER. FUNCT. ENVIR.			TASK DEPE	NDENCY NO. TASK - SKILL			REFERENCE NOTE				
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
1	Observe settings on sensors	01 01 01 01 01 01 01 01	01 01 01 01 01 01 01 01	2.B.04-6 2.B.04-1 2.B.04-13 2.B.04-18 2.B.04-12 2.B.04-14 2.B.04-15 2.B.04-15 2.B.04-8	2.A.17-3 2.A.19-1 2.A.04-2 2.A.21-2 2.A.01-5 2.A.17-4 2.A.19-2 2.A.12-16 2.A.12-17 2.A.24	Camera Mode Monitor Scanner Mode Monitor TV Camera Mode Monitor Radiometer Mode Monitor Telescope Mode Monitor Camera Mode Monitor Scanner Mode Monitor Radar Transmitter Mode Monitor Radar Receiver Mode Monitor Sferics Detector Mode Monitor	0209 0212 0644 0942 0204 0209 2103	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician			
2	Record bandsettings, look angles, exposures, filters, etc.	06	01	2.8.04-18	2.A.01-5 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Telescope Mode Recorder	0943	003.281	Instrumentation Technician			
		06	01	2.B.04-13	2.A.04-2 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	TV Camera Mode Recorder	2045	003.281	Instrumentation Technician			
		06	01	2.B.04-4	4.D.10 2.A.19-1 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician			
		06	01	2.8.04-14	4.D.10 2.A.19-2 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician			
		06	01	2.8.04-11	4.D.10 2.A.21-2 2.A.15-1 2.A.15-2 2.F.02-3 4.0.08-2 4.D.10	Radiometer Mode Recorder		003.281	Instrumentation Technician			
REVI	REVISION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A P.	AGE E0-5-04-1		

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 E	arth Observations '		MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5	E	EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	OPER. ENVIR.	TASK DEPE	NDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE		
NO.	DESCRIPTION	FUNCT.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE		NO.	
2	(Continued)	06	01		2.A.24 2.A.15-1 2.A.15-2 2.F.02-3	Sferics Detector Mode Recorder	2119	003.281	Instrumentation Technician			
		06	01	2.8.04-15	4.D.08-2 4.D.10 2.A.12-16 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Radar Transmitter Mode Recorder	2105	003.281	Instrumentation Technician			
		06	01	2.8.04-15	4.D.10 2.A.12-17 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Radar Receiver Mode Recorder	2106	003.281	Instrumentation Technician			
	•	06	01	2.8.04-12	4.D.10 2.A.17-4 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Camera Mode Recorder	2120	003.281	Instrumentation Technician			
		06	01	2.8.04-6	4.D.10 2.A.17-3 2.A.15-1 2.A.15-2 2.F.02-3 4.D 08-2	Camera Mode Recorder	2120	003.281	Instrumentation Technician			
3	Observe.film remaining status	01 01 01 01 01	01 01 01 01 01	2.8.04-6 2.8.04-11 2.8.04-12 2.8.04-13 2.8.04-18	2.A.27-2 2.A.27-4	Camera Status Monitor Camera Status Monitor Camera Status Monitor TV Camera Status Monitor Camera Status Monitor	2050 2050 2052	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician			
										Ĭ		
REV	REVISION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A	PAGE EO-5-	-04-2	

DISCIP	LINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION MODE: A - Shuttle Sortie			
EXPER	IMENT AREA: Sortie Lab Pay	load EO	-5		EXPERIMENT	5.0 Natural Disaster Assessment	BASIC FUNCTION: 04 - Experiment Setup				
С	CREW TASK STATEMENT CREW OPER FUNCT. ENVIR			TASK DEF	ENDENCY NO	TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.	
	Review data collected, time remaining, atmospheric conditions, etc., to establish observing	02	01	5.1.01	5.8.02 2.A.01-5 2.B.04-18 1.G.02-11	Meteorological Conditions Observer	0516	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist		
	program	02 02	01 01	6.A.01-2 3.C.05-1	1.G.02-11 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Time Elapsed Observer Geological Precursor Data Observer	2051	2xx.xxx 024.081 024.081	Special Spaceflight Skill Geologist Geophysicist	E0-3	
		02	01	3.C.05-2	2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Meteorological Precursor Data Observer		024.288 025.088 024.081	Meteorologist Geophysicist		
		02	01	3.C.05-3	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Artificial Precursor Data Observer	2129	024.081	Geophysicist		
		02	01	3.C.05-4		Topographical Precursor Data Observer	2130	018.188 024.081	Surveyor, Geodetic Geophysicist		
		02	01	3.C.05-5		Precursor Disaster Data Observer	2131	024.081	Geophysicist		
REVIS	SION NO:	REVIS	ION DAT	re:		PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GR	H SERIES ES-1-A PA	AGEE0-5-04-3	

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	/load EO-5			EXPERIMENT	5.0 Natural Disaster Assessment		BASIC FU	ONCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW	OPER.	TASK DE	PENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NOTE NO.
4	(Continued)	וו	01	3.C.05-1	2.F.02-3 2.F.03-1 2.G.03-1	Geological Precursor Data Evaluator	2122	024.081 024.081	Geophysicist Geologist	
		11	o1	3.C.05-2	2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Meteorological Precursor Data Evaluator	2132	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist	
		17	01	3.C.05-3	5.B.02 3.C.06 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 15.B.02	Artificial Precursor Data Evaluator	2133	024.081	Geophysicist	
:		11	01	3.C.05-4	3.C.06	Topographical Precursor Data Evaluat	or 2134	018.188 024.081	Surveyor, Geodetic Geophysicist	
		11	01	3.C.05-5	3.C.06 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Precursor Disaster Data Evaluator	2135	024.081	Geophysicist	
		02	01	3.C.05-1	3.C.06 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Earthquake Data Observer	2123	024.081 024.081 018.188	Geologist Geophysicist Surveyor, Geodetic	
REV	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: JHL/GRH/EMW AF	PROVED	BY: GRH	SERIES ES-1-A PAGE	E0-5-04-

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	load EO-	5		EXPERIMENT:	5.0 Natural Disaster Assessment		BASIC FU	INCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
4	(Continued)	02	01	3.C.06-2	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Hurricane Data Observer	2136	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		02	01	3.C.05-3	5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Tornado Data Observer	2137	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		02	01	3.C.06-4	5. I.01 5. B.02 3. C.05 2. F.01-1 2. F.02-3 2. F.03-1 2. G.03-1 5. I.01	Tidal Wave Data Observer	2138	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		02	01	3.C.06-5	5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Flood Data Observer	2139	024.081 025.088 025.288	Geophysicist Meteorologist Weather Obse rver	
		02	01	3.C.06-6	5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Volcanic Eruption Data Observer	2140	024.081 024.081 018.188	Geophysicist Geologist Surveyor, Geodetic	
		02	01	3.C.06-7	5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Forest Fire Data Observer	2141	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	H SERIES ES-1-A PA	GE E0-5-04-4

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO	-5		EXPERIMENT	5.0 Natural Disaster Assessment		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL	ATE - (-)		PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NOTE NO.
4	(Continued)	02	01	3.C.06-8	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1	Range Fire Data Observer	2142	024.081	Geophysicist	
		02	01	3.C.06-9	2.G.03-1 5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Landslide Data Observer	2]43	. 024.081	Geophysicist	
		02	01	3.C.06-10	5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Snowslide Data Observer	2144	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		02	01	3.C.06-11	5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Land Subsidence Data Observer	2145	024.081	Geophysicist	
		02	01	3.C.05-12	15.B.02	Drought Data Observer	2146	024.081	Geophysicist	
		02	01	3.C.05-13	5.8.02	Blizzard Data Observer	2147.	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
REV	ISION NO:	REVIS	ION DAT	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PA	GE E0-5-04-5

DISC	IPLINE: EARTH RESOURCES				FPE: ES-1 6	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pag	/load EO-	-5		EXPERIMENT	5.0 Natural Disaster Assessment		BASIC FU	JNCTION: 04 - Experiment Setu	p
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL		1	PRIMARY OCCUPATIONAL SKILL	REFERENC
ĸО.	DESCRIPTION	FUNCT.	ENVIR.	PRIMARY	SECONDARY	TITLE	NO	. NO.	TITLE	NOTE NO.
4	(Continued)	11	01	3,C.06-1	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1	Earthquake Data Evaluator	2124	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3, C, 06-2	2.G.03-1 5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Hurricane Data Evaluator	2148	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		י. זז	01	3. C.06-3	5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Tornado Data Evaluator	2149	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-4	5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Tidal Wave Data Evaluator	2150	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-5	5.8.02	Flood Data Evaluator	215	024.081 025.288 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-6	5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Volcanic Eruption Data Evaluator	2152	024.081 024.081 018.188		
REV	VISION NO:	REVIS	SION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVE	DBY: GRI	SERIES ES-1-A	PAGE E0-5-04-6

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION N	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO-	5		EXPERIMENT:	5.0 Natural Disaster Assessment		BASIC FU	NCTION: 04 - Experiment Setup	
)	CREW TASK STATEMENT	CREW	OPER.	TASK DEF	ENDENCY NO	TASK - SKILL		Ì	PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
4	(Continued)	11	נס	3.C.06-7	3.C.05 2.F.01-1 2.F.02-3	Forest Fire Data Evaluator	2153	024.081	Geophysicist .	
		11	10	3.C.05-8	2.F.03-1 2.G.03-1 5.I.01 5.B.02	Range Fire Data Evaluator	2154	024.081	Geophysicist	
		11	01	3.0.06-9	5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1	Landslide Data Evaluator	2155	024.081	Geophysicist	
		11	01	3.0.06-10	5.I.01 5.B.02 3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01	Snowslide Data Evaluator	2056	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.0.06-11	5.B.02	Land Subsidence Data Evaluator	2057	024.081	Geophysicist	
		33	01	3.C.06-12	5.8.02	Drought Data Evaluator	2158	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A P	AGE E0-5-04-7

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 E	arth Observations		MISSION	NODE: A - Shutt	tle Sortie		
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5	E	XPERIMENT:	5.0 Natural Disaster Assessment		BASIC FU	UNCTION: 04 - E	Experiment Setup		
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPA	TIONAL SKILL	_	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	T	TITLE		NO.
4	(Continued)	11	01 01 01	5.1.01	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 5.B.02 2.A.01-5 2.B.04-18 5.A.01-2 6.A.01-3	Blizzard Data Evaluator Meteorological Condition Evaluator Mission Events Evaluator	2057	024.081 024.088 025.288 025.288 024.081 025.088 025.288 xxx.xxx	Geophysicist Meteorologist Weather Observ Geophysicist Meteorologist Weather Observ Special Space	ver		£0-3
5	Checkout experiment sensors	03 03 03 03 03 03 03 03 14 14 14 14 14 14	01 01 01 01 01 01 01 01 01 01 01 01 01	2.A.12-15 2.A.12-17 2.A.17-3 2.A.1704 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.24 2.A.01-15 2.B.04-12 2.B.04-13 2.B.04-14 2.B.04-11 2.B.04-8 2.B.04-15 2.B.04-15	4. D. 18 4. D. 18 2. A. 17-3 2. A. 1704 2. A. 04-2 2. A. 19-2 2. A. 19-2 2. A. 19-2 2. A. 19-2 2. A. 12-16	Radar Transmitter Inspector Radar Receiver Inspector Camera Inspector TV System Inspector Scanner Inspector Scanner Inspector Radiometer Inspector Sferics Detector Inspector Telescope Inspector Camera Tester Camera Tester TV System Tester Scanner Iester Scanner Iester Scanner Tester Radiometer Tester Sferics Detector Tester Telescope Tester Radar Transmitter Tester Radar Receiver Tester	0932 0933 0294 0294 2059 0828 0829 0832 0001 1448 1448 2060 2061 2061 2061 2061 20627	722.281 722.281 714.684 714.684 722.281 722.281 722.281 722.281 722.281 003.181 003.181 003.181 003.181 003.181 003.181 003.181 003.181	Inspector, Sys Inspector, Sys Camera Inspect Camera Inspect Inspector, Sys Inspector, Sys Inspector, Sys Inspector, Sys Inspector, Sys Inspector, Sys Inspector, Sys Inspectorical Tec Electrical Tec	stems tor tor stems stems stems stems stems stems chnician chnician chnician chnician chnician chnician chnician chnician chnician chnician chnician chnician chnician chnician		
6	Calibrate multispectral radiometer	08	01	2.8.04-11	2.A.21-2 4.C.01	Radiometer Calibrator	0837	710.884 003.181	Calibrator Electrical Te	chnician		
REVI	SION NO:	REVIS	ION DAT	Œ:		PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GRH	SI	ERIES ES-1-A	PAGE	E0-5-04-8

5.50.	PLINE: EARTH RESOURCES		_	F	PE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	load EO-	5	E	XPERIMENT:	5.0 Natural Disaster Assessment		BASIC FU	JNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
10	Determine if standard sensors are adequate due to weather conditions	04	01	2.A.19-1	2.B.04-14 3.C.05 3.C.06 5.B.02	Scanner Adequacy Determiner	2088	024.081	Geophysicist	
		04	01	2.A.19-2	5.I.01 2.B.04-4 3.C.05 3.C.06 5.B.02	Scanner Adequacy Determiner	2088	024.081	Geophysicist	
		04	01	2.A.04-2	5. I.01 2. B.04-13 3. C.05 3. C.06 5. B.02	TV Camera Adequacy Determiner	2089	024.081	Geophysicist	
		04	01	2.A.21-2	5.I.01 2.B.04-11 3.C.05 3.C.06 5.B.02 5.I.01	Radiometer Adequacy Determiner	2090	024.081	Geophysicist	
		04	01	2.A.24	2.B.04-8 3.C.05 3.C.06 5.B.02 5.I.01	Sferics Detector Adequacy Determine	2127	024.081	Geophysicist	
		04	01	2.A.01-5	2.B.04-18 2.B.09 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Telescope Adequacy Determiner	2092	024.081	Geophysicist	
		04	01	2.A.17-3	2.B.04-6 2.B.09 2.A.27 3.C.05 3.C.06 5.B.02 5.I.01	Camera Adequacy Determiner	2093	024.081	Geophysicist	
REV	ISION NO:	REVIS	SION DAT	LE:	1	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: G	RH SERIES ES-1-A PA	GE E0-5-04-9

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 E	arth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5	F	XPERIMENT	5.0 Natural Disaster Assessment		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
10	(Continued)	04	01	2.A.12-16	2.B.04-15 2.B.09 3.C.05 3.C.06 5.B.02	Radar Transmitter Adequacy Determiner	2112	024.081	Geophysicist	
		04	10	2.A.12-17	5.1.01 2.8.04-15 2.8.09 3.C.05 3.C.06 5.8.02 5.1.01	Radar Receiver Adequacy Determiner	2113	024.081	Geophysicist	
23	Unpackage instruments and sensors	18 18 18 18 18 18 18 18 18	01 01 01 01 01 01 01 01	2.A.01-6 2.A.04-2 2.A.1703 2.A.1704 2.A.19-1 2.A.19-2 2.A.21-2 2.A.24 2.A.12-16 2.A.12-17	4.0.20 4.0.20 4.0.20 4.0.20 4.0.20 4.0.20 4.0.20 4.0.20 4.0.20 4.0.20 4.0.20	Telescope Unstower TV Camera Unstower Camera Unstower Camera Unstower Scanner Unstower Scanner Unstower Radiometer Unstower Sferics Detector Unstower Radar Transmitter Unstower Radar Receiver Unstower	0303 0054 0292 0292 0823 0823 0642 0825 0611 0628	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
24	Load film in cameras	27 27 27	01	2.A.27-1 2.A.27-2 2.A.27-4	2.A.17-3 2.E.05 4.D.04 2.A.17-4 2.E.06 4.D.04 2.A.04-2 2.E.04 4.D.04	Film Cartridge Installer Film Cartridge Installer Film Cartridge Installer	0046 - 0046 - 0046	003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician	
REVISION NO: REVISION DATE:						PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GR	SERIES ES-1-A	PAGE E0-5-04-10

DISCIPLINE: EARTH F	ESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A'- Shuttle Sortie	
EXPERIMENT AREA: So	rtie Lab Payl	oad E0-5			EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	JNCTION: 05 - Experiment Shutdown	
CREW TASK STA	rement	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. DESCRIE	TION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝΟ.	TITLE	NO.
27 Shutdown sensor	s	16 16 16 16 16 16 16	10 10 10 10 10 10 10 10	2.B.04-15	2.A.19-1 2.A.19-2 2.A.21-2	Radar Transmitter Control Deactuator Radar Receiver Control Deactuator Camera Control Deactuator TV System Control Deactuator Scanner Control Deactuator Scanner Control Deactuator Radiometer Control Deactuator Raficmeter Control Deactuator Telescope Control Deactuator	0664 0666 0848 0848 2068 0849 0849 0673 0853 0320	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
28 Develop film		06 06	01 01	4.B.08 4.D.19	2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-5 2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-5	Film Processor	0328	976.782 976.782	Film Developer Film Developer	E0-2
30 Clean and servi	ce optics	19 19 19 19 19	01 01 01 01 01 01	2.A.01-5 2.A.17-3 2.A.17-4 2.A.19-1 2.A.21-2 2.A.24	4.0.06 4.D.18 2.C.13 4.D.06 4.D.18 2.C.13 4.D.06 4.D.18 2.C.13 4.D.06 4.D.18 2.C.13 4.D.06 4.D.18 2.C.13 4.D.06 4.D.18 2.C.13	Telescope Optics Cleaner Camera Optics Cleaner Camera Optics Cleaner Scanner Optics Cleaner Radiometer Optics Cleaner Sferics Detector Optics Cleaner	0004 0097 0097 0884 0924	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
REVISION NO:		REVIS	ION DAT	E:		PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GRI	H SERIES ES-1-A PAG	E E0-5-05-1

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5		EXPERIMENT	5.0 Disaster Assessment		BASIC FU	JNCTION: 05 - Experiment Shutdow	מים
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	енреису ио	. task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO	. NO.	TITLE	NO.
30	(Continued)	19 19	01 01	2.A.19-2 2.A.04-2	4.D.06 4.D.18 2.C.13 4.D.06	Scanner Optics Cleaner TV Camera Optics Cleaner	088		Instrumentation Technician	
32	Package data for earth return	17	01	2.A.27-1	4.D.18 2.C.13 4.A.04 4.D.20	Film Stower	085		Instrumentation Technician General Technical Skill	
	•	17	01	2.A.27-2	4.D.04-1 4.A.04 4.D.20	Film Stower	. 085	000.000	General Technical Skill	
		17	01	2.A.27-3	4.D.04-1 4.A.04 4.D.20 4.D.04-1	F11m Stower	085	000.000	General Technical Skill	
	·	17	01	2.A.27-4	4.A.04 4.D.20 4.D.04-1	Film Stower	085	000.000	General Technical Skill	
		17	01	2.A.27-5	4.A.04 4.D.20 4.D.04-1	Film Stower	085	2 000.000	General Technical Skill	
						·				
-										
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW	APPROVI	D BY: GRH	SERIES ES-1-A	PAGE E0-5-05-2

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	yload EC)-5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
1	Observe settings on sensors	01 01 01 01 01 01	01 01 01 01 01 01 01	2.B.04-13 2.B.04-11 2.B.04-18 2.B.04-12 2.B.04-14 2.B.04-15 2.B.04-15	2.A.17-3 2.A.19-1 2.A.04-2 2.A.21-2 2.A.01-5 2.A.17-4 2.A.19-2 2.A.12-16 2.A.12-17	Camera Mode Monitor Scanner Mode Monitor TV Camera Mode Monitor Radiometer Mode Monitor Telescope Mode Monitor Camera Mode Monitor Scanner Mode Monitor Radar Transmitter Mode Monitor Radar Receiver Mode Monitor	0204 0209 0212 0644 0942 0204 0209 2103 2104	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
2	Record bandsettings, look angles, exposures, filters, etc.	01 06	01	2.B.04-8 2.B.04-18	2.A.24 2.A.01-5 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Sferics Detector Mode Monitor Telescope Mode Recorder	0943	003.281	Instrumentation Technician Instrumentation Technician	
	·	06	01	2.8.04-13	2.A.04-2 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	TV Camera Mode Recorder	2045	003.281	Instrumentation Technician	
		06	01	2.B.04-4	2.A.19-1 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Scanner Mode Recorder	2046	003.281	Instrumentation Technician	
		06	01	2.B.04-14 2.B.04-11	2.A.19-2 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Scanner Mode Recorder Radiometer Mode Recorder	2046 - 2047	003.281	Instrumentation Technician Instrumentation Technician	
					2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10			·		
REV	ISION NO:	REVIS	IAG NOI	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BÝ: GR	RH SERIES ES-1-A PAG	SE E0-5-06-1

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 E	arth Observations		MISSION I	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P	ayload EO-	-5	E	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduc	t
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
ΝО.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
2	(Continued)	06	01	2.B.04-8	2.A.24 2.A.15-1 2.A.15-2 2.F.02-3	Sferics Detector Mode Recorder	2119	003.281	Instrumentation Technician	
		06	01	2.8.04-15	2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Radar Transmitter Mode Recorder	2105	003.281	Instrumentation Technician	
	•	06	01	2.8.04-15	4.0.10 2.A.12-17 2.A.15-1 2.A.15-2 2.F.02-3 4.0.0802	Radar Receiver Mode Recorder	2106	003.281	Instrumentation Technician	
		06	01	2.B.04-12	4.0.10 2.A.17-4 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Camera Mode Recorder	2120	003.281	Instrumentation Technician	
		06	01	2.8.04-6	4.D.10 2.A.17-3 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Camera Mode Recorder :	2120	003.281	Instrumentation Technician	
3	Observe film remaining status	01 01 01 01 01	01 01 01 01 01	2.8.04-6 2.8.04-11 2.8.04-12 2.8.04-13 2.8.04-18	2.A.27-2 2.A.27-4	Camera Status Monitor Camera Status Monitor Camera Status Monitor TV Camera Status Monitor Camera Status Monitor	2050 2050 2050 2052 2052 2050	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
]			<u>L. </u>		
REV	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GF	RH SERIES ES-1-A	PAGE E0-5-06-2

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	load EO-	5	F	XPERIMENT	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
9	Identify precursors to natural disasters	02	01	2.8.04-13	3.C.05-1 3.C.05-2 3.C.05-3	TV Presentation Observer	0896	024.081	Geophysicist -	
		02	01	2.8.04-14	3.C.05-4 3.C.05-5 3.C.06 2.A.19-1 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	Scanner Presentation Observer	0897	024.081	Geophysicist	
-		02	01	2.8.04-4	3.C.05-5 3.C.06 2.A.10-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	Scanner Presentation Observer	0897	024.081	Geophysicist	
		02	01	2.B.04-15	3.C.05-3 3.C.06 2.A.12-17 2.A.12-16 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	Radar Presentation Observer	. 0934	024.081	Geophysicist	
		02	01	2.B.04-11	3. C.06 2. A. 21-2 3. C.05-1 3. C.05-2 3. C.05-3 3. C.05-4 3. C.05-5 3. C.06	Radiometer Presentation Observer	0898	024.081	Geophysicist	
	<u> </u>					,				
REV	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GF	RH SERIES ES-1-A P	AGE E0-5-06-3

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO	-5		EXPERIMENT	5.0 Disaster Assessment		BASIC FU	INCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	ΝΟ.	TITLE	NO.
9	(Continued)	02	01	2.8.04-8	2.A.24 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4	Sferics Detector Presentation Observe	r 0937	024.081	Geophysicist	
		02	01	2.8.09	3.C.05-4 3.C.05-5 3.C.06 2.A.01-5 2.B.04-18 3.C.05-1 3.C.05-2 3.C.05-2	Telescope Presentation Observer	0895	024.081	Geophysicist	
		02	10	3.C.05-1	3.C.05-4 3.C.05-5 3.C.06	Geological Precursor Observer	2160 ©	024.081 024.081	Geophysicist Geologist	
					5. 1.01 5. B.02 2. B.04 2. A. 19-1 2. A. 12-16 2. A. 12-17 2. A. 21-2 2. A. 21-2 2. A. 24 2. A. 01-5 2. B.09					
		02	01	3.C.05-2	3. C. 06 5. I. 01 5. B. 02 2. B. 04 2. A. 19-1 2. A. 19-2 2. A. 12-17 2. A. 21-2 2. A. 24 2. A. 01-5	Meteorological Precursor Observer	2161	024.088 024.081	Meteorologist Geophysicist	
REV	ISION NO:	REVIS	SION DAT	TE:	2.8.09	PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GF	SERIES ES-1-A	PAGE E0-5-06-4

DISCIPLI	NE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPERIM	IENT AREA: Sortie Lab Pay	oad EO-	-5	1	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduct	,
CR	EW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
9 (0	Continued)	02	01	3.C.05-3	3.C.06 5.I.01 5.B.02 2.B.04	Artificial Precursor Observer	2762	024.08)	Geophysicist	
					2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09					
		02	01	3.C.05-4	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Topographical Precursor Observer	2163	024.081	Geophysicist	
		Q2	01	3.C.05-5	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Precursor Disasters Observer	2164	024.081	Geophysicist	
REVISIO	ON NO:	REVIS	SION DAT	E:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRI	H SERIES ES-1-A PA	GE E0-5-06-5

DISC	IPLINE: EARTH RESOURCES			1	FPE: ES-1 E	arth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload E()-5		EXPERIMENT	: 5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NO.
9	(Continued)	04	01	3.C.05-1	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2	Geological Precursor Classifier	2165	024.081 024.081	Geophysicist Geologist	
		04	01	3.C.05-2	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.19-2	Meteorological Precursor Classific	2166	025.088 024.081	Meteorologist Geophysicist	
		04	01	3.C.05-3	2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09 3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16	Artificial Precursor Classifier	2167	024.083	Geophysicist	
					2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09					
REV	ISION NO:	REVIS	ION DA	TE:	1	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PAG	GE E0-5-06-6

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-5			EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduct	
(CREW TASK STATEMENT	CREW	OPER.	TASK DE	PENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
9	(Continued)	04	01	3.C.05-4	3.C.06 5.I.01 2.B.04 2.A.19-1	Topographical Precursor Classifier	2168	024.081	Geophysicist	
		04	01	3. C. 05-5	5.I.01 2.B.04 2.A.19-1 2.A.19-2	Precursor Disasters Classifier	2169	- 024.081	Geophysicist	
		04	01	2.8.04-1	2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09 3 2.A.04-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	TV Data Classifier	2076	024.081	Geophysicist	
		04	01	2.B.04-1	3.C.06 2.A.19-1 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Scanner Data Classifier	2077	024.081	Geophysicist	
REVI	SION NO:	REVIS	SION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: G	RH SERIES ES-1-A P.	AGE E0-5-0

DISCI	PRIMENT AREA: Sortie Lab Payload E0-5 CREW TASK STATEMENT CREW OPER. T				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P	ayload EO	-5		EXPERIMENT	5.0 Disaster Assessment		BASIC FU	JNCTION: 05 - Experiment Conduct	
	CREW TASK STATEMENT			TASK DEP	ENDENCY NO	TASK - SKILL	0 - 1 - 2		PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
9	(Continued)	04	01	2.8.04-4	2.A.19-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4	Scanner Data Classifier	2077	024.081	Geophysicist	
		04	01	2.8.04-15	3.C.05-5 3.C.06	Radar Data Classifier	2109	024.081	Geophysicist	
		04	01	2.8.04-11	3.C.05-5 3.C.06 2.A.21-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4	Radiometer Data Classifier	2078	024.081	Geophysicist	
		04	01	2.8.04-8	3.C.05-5 3.C.06 2.A.24 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4	Sferics Detector Data Classifier	2170	024.081	Geophysicist	
		04	01	2.8.09	3.C.06 2.A.01-5 2.B.04-18 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Telescope Data Classifier	2110	024.081	Geophysicist	
DEU	ISION NO:	PEVIC	SION DA	re.	<u> </u>	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	SERIES ES-1-A P.	GE E0-5-06-8

DISCI	PLINE: EARTH RESOURCES			.]	PPE: ES-1 E	arth Observations		MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5	1	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
11	Detect incipient disasters	02	01	2.B.04-13	2.A.04-2 3.C.05-1 3.C.05-2 3.C.05-3	TV Presentation Observer	0896	024.081	Geophysicist	
·		02	01	2.B.04-14	3.C.05-4 3.C.05-5 3.C.06 2.A.19-1 3.C.05-1 3.C.05-2	Scanner Presentation Observer	0897	024.081	Geophysicist	
		02	01	2.8.04-4	3.C.05-4 3.C.05-5 3.C.06 2.A.19-2 3.C.05-1 3.C.05-2 3.C.05-3	Scanner Presentation Observer	0897	024.081	Geophysicist	
		02	01	2.8.04-15	3.C.05-3 3.C.05-4 3.C.05-5 3.C.06 2.A.12-17 2.A.12-16 3.C.05-1 3.C.05-2 3.C.05-2	Radar Presentation Observer	0934	024.081	Geophysicist	AND THE REST OF THE PARTY OF TH
		02	01	2.B.04-11	3.C.05-4 3.C.05-5 3.C.06 2.A.21-2 3.C.05-1 3.C.05-2 3.C.05-3	Radiometer Presentation Observer	0898	024.081	Geophysicist	
		02	01	2.8.04-8	3. C.05-3 3. C.05-5 3. C.06 2. A.24 3. C.05-1 3. C.05-2 3. C.05-3 3. C.05-4 3. C.05-5	Sferics Detector Presentation Observ	er 0937	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DA	re:	=12 C 0€ ==	PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GR	H SERIES ES-1-A PAGI	E E0-5-06-9

DISC	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FL	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
11	(Continued)	02	01	2.8.09	2.A.01-5 2.B.04-18 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4	Telescope Presentation Observer	0895	024.081	Geophysicist	-
		02	01	3.C.05-1	3.C.05-3 3.C.05-4 3.C.05-5 3.C.06 3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2	Geological Precursor Observer	2160	024.081	Geophysicist	
		02	01	3.C.05-2	2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09 3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17	Meteorological Precursor Observer	2161	024.081	Geophysicist	
		02	01	3.C.05-3	2.A.24 2.A.24 2.A.01-5 2.B.09 3.C.05 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2	Artificial Precursor Observer	2162	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DA	II TE:	2.A.01-5	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRI	H SERIES ES-1-A PAGE	E0-5-06-10

DISC	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P	ayload EO-	·5		EXPERIMENT	5.0 Disaster Assessment		BASIC FU	INCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
ΝΟ.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
11	(Continued)	02	01	3.C.05-4	3. C. 06 5. I. 01 5. B. 02 2. B. 04 2. A. 19-1 2. A. 19-2 2. A. 12-16	Topographical Precursor Observer	2163	024.081	Geophysicist 	
		. 02	01	3.C.05-5	2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09 3.C.05 5.I.01	Precursor Disasters Observer	2164	024.081	Geophysicist	
					2. B. 04 2. A. 19-1 2. A. 19-2 2. A. 12-16 2. A. 12-17 2. A. 21-2 2. A. 24 2. A. 01-5 2. B. 09		1			
		04	01	3.C.05-1	3. C. 06 5. I. 01 5. B. 02 2. B. 04 2. A. 19-1 2. A. 19-2 2. A. 12-17 2. A. 21-2 2. A. 21-2 2. A. 01-5 2. B. 09	Geological Precursor Classifier	2165	024.081	Geophysicist	
	ZISION NO:		SION DA			PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PA	GE E0-5-06-1

DISCI	PLINE: EARTH RESOURCES			1	PPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5	1	EXPERIMENT	5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
n	(Continued)	04	01	3.C.05-1	3.C.06 5.I.01 5.B.02	Meteorological Precursor Classifi	ler 2166	024.081	Geophysicist	
					2.8.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					
		04	01	3.C.05-3	2.8.09 3.C.05 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.12-16 2.A.12-16 2.A.12-17	Artificial Precursor Classifier	2167	024.081	Geophysicist .	
		04	01	3.C.05-4	2.A.24 2.A.01-5 2.B.09 3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-17 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Topographical Precursor Classific	2168	024.081	Geophysicist	
REV	ISION NO:	REVIS	SION DAT	CE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	H SERIES ES-1-A P	GE E0-5-06-12

DISC	IPLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	ERIMENT AREA: Sortie Lab Pag	yload EO-	-5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	PENDENCY NO.	TASK - SKILL	() (+ 		PRIMARY OCCUPATIONAL SKILL	REFERENCI
ĸО.	DESCRIPTION	FUNCT.	. ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
11	(Continued)	04	01	3.C.05-5	15 7 71	Precursor Disaster Classifier	2169	024.081	Geophysicist	
					5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					
		04	oı	2.8.04-13	2.B.09 2.A.04-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	TV Data Classifier	2076	024.081	Geophysicist	
		04	01	2.8.04-14	4 2.A.19-1 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	Scanner Data Classifier	2077	024.081	Geophysicist	
		04	01	2.8.04-4	3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	Scanner Data Classifier	2077	024.081	Geophysicist	
	·	04	01	2.8.04-15	3.C.06 2.A.12-17 2.A.12-16 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Radar Data Classifier	2109	024.081	Geophysicist	
REV	VISION NO:	REVI	SION DA	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	RY: GF	RH SERIES ES-1-A PA	GE E0-5-06-

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Paylo	oad E0-5		E	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduct	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
11	(Continued)	04	01	2.B.04-11	13.C.05-2	Radiometer Data Classifier	2078	024.081	Geophysicist	
	•	04	01	2.8.04-8	3. C. 05-3 3. C. 05-4 3. C. 05-5 3. C. 06 2. A. 24 3. C. 05-1 3. C. 05-2 3. C. 05-3	Sferics Detector Data Classifier	2170	024.081	Geophysicist	
		04	01	2.B.09	3.C.05-4 3.C.05-5 3.C.06 2.A.01-5 2.B.04-18 3.C.05-1 3.C.05-2 3.C.05-3	Telescope Data Classifier	2010	024.081	Geophysicist	
		13	01	3.C.06-1	3.C.05-4 3.C.05-5 3.C.06 3.C.05-1 3.C.05-3 3.C.05-4	Earthquake Disaster Predictor	2171	024.081	Geophysicist	
	,	13	01	3.C.06-2	2.B.09 3.C.05-2 3.C.05-3 3.C.05-4 2.B.04	Hurricane Disaster Predictor	2172	024.081	Geophysicist	
		13	01	3.C.06-3	2.B.09 3.C.05-2 3.C.05-3 3.C.05-4 2.B.04 2.B.09	Tornado Disaster Predictor	2173	024.081	Geophysicist	
REVI	ISION NO:	REVIS	SION DAT	E:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	SERIES ES-1-A PA	GE E0-5-06-14

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations	-	MISSION	MODE: A - Shuttle Sortle	
EXPE	RIMENT AREA: Sortie Lab F	Payload E)-5		EXPERIMENT	: 5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct	-
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NOIE NO.
11	(Continued)	13	01	3.C.06-4	3. C. 05-4 3. C. 05-5 2. B. 04	Tidal Wave Disaster Predictor	2174	024.081	Geophysicist	
		13	01	3.C.06-5	2.B.09 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 2.B.04	Flood Disaster Predictor	2175	024.081	Geophysicist	·
		13	01	3.C.06-6	2.B.09 3.C.05-1 3.C.05-3 3.C.05-4 2.B.04 2.B.09	Volcanic Eruption Disaster Predicto	r 2176:	024.081	Geophysicist	
	13 01 3.C.O				3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 2.B.04	Forest Fire Disaster Predictor	2177:	024.081	Geophysicist	
	13 01 3.C.C		3.C.06-8	2.B.09		2178	024.081	Geophysicist		
	13 01 3.0.05			3.0.05-9	2.B.09 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 2.B.04 2.B.09	Landslide Disaster Predictor	2179	024.081	Geophysicist	
REV	ISION NO:	REVIS	SION DAT	re:	1	PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GRH	SERIES ES-1-A P.	AGE E0-5-06-15

DISCIP	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION N	NODE: A - Shuttle Sortie	
EXPER	RIMENT AREA: Sortie Lab Payle	oad EO-5			EXPERIMENT	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduct	
(CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
ΝΟ.	DESCRIPTION	FUNCT. NO.	ENVIR. NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NOTE NO.
11	(Continued)	13	01	3.0.06-10	3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	Snowslide Disaster Predictor	2080	024.081	Geophysicist	
		13	01	3.C.06-11	3.C.05-3 3.C.05-4 3.C.05-5 2.B.04	Land Subsidence Disaster Predictor	2181	024.081	Geophysicist	
		13	01		2 2.8.09 3.C.05-2 3.C.05-4 2.8.09 3.C.05-2 3.C.05-3 3.C.05-4 2.8.04 2.8.09	Drought Disaster Predictor Blizzard Disaster Predictor	2182		Geophysicist Geophysicist	
12	Place sensors in operation in desired mode	15 15 15 15 15 15 15 15 15	01 01 01 01 01 01 01 01 01	2.B.04-13 2.B.04-14 2.B.04-15 2.B.04-15 2.B.04-15 2.B.04-17 2.B.04-8	2 2.A.17-4 3 2.A.04-2 4 2.A.19-1 5 2.A.12-16 5 2.A.19-2 2.A.12-17 1 2.A.21-2	Camera Control Actuator Camera Control Actuator TV Camera Control Actuator Scanner Control Actuator Radar Transmitter Control Actuator Scanner Control Actuator Radar Receiver Control Actuator Radiometer Control Actuator Sferics Detector Control Actuator Telescope Control Actuator	0245 0245 0899 0842: 0935 0842 0936 0843 0845	003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
13	Select data collection mode	13	01	2.B.04-6	2.A.17-3 3.C.05 3.C.06	Camera Mode Selector	0271	003.181 024.081	Electrical Technician Geophysicist	
REVI	SION NO:	REVIS	ION DAT	E:	-1	PREPARED BY: JHL/GRH/EMW API	ROVED	BY: GRH	SERIES ES-1-A PA	GE E0-5-06-1

DISCIPLINE: EARTH RESOURCES			P	FPE: ES-1 Earth Observations EXPERIMENT: 5.0 Disaster Assessment		MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payle	oad E0-5	i	F	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduct	
CREW TASK STATEMENT		OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
13 (Continued)	13	רס	2.8.04-12	2.A.17-4 3.C.05 3.C.06	Camera Mode Selector	0271	003.181 024.081	Electrical Technician Geophysicist	
	13	01	2.B.04-13	2.A.04-2 3.C.05 3.C.06	TV Camera Mode Selector	2184	003.181 024.081	Electrical Technician Geophysicist	
	13	01	2.B.04-14	2.A.19-1 3.C.05 3.C.06	Scanner Mode Selector	0916	003.181 024.081	Electrical Technician Geophysicist	
	13	01	2.B.04-4	2.A.19-2 3.C.05 3.C.06	Scanner Mode Selector	0916	003.181 024.081	Electrical Technician Geophysicist	
	13	01	2.8.04-15	2.A.12-16 3.C.05 3.C.06	Radar Transmitter Mode Selector	0938	003.181 024.081	Electrical Technician Geophysicist	
	13	01	2.B.04-15	2.A.12-17 3.C.05	Radar Receiver Mode Selector	0939	003.181 024.081	Electrical Technician Geophysicist	1
	13	07	2.B.04-11	13.C.05	Radiometer Mode Selector	0917	003.181 024.081	Electrical Technician Geophysicist	
	13	01	2.8.04-8	3.C.06 2.A.24 3.C.05	Sferics Detector Mode Selector	0940	003.181 024.081	Electrical Technician Geophysicist	
	13	01	2.B.04-18	3.C.06 2.A.01-5 3.C.05 3.C.06	Telescope Mode Selector	0265	003.181 024.081	Electrical Technician Geophysicist	
Monitor data collection process					Camera Operation Monitor	1344	003.281	Instrumentation Technician	·
	01 01 2.8.0				Camera Operation Monitor	1344	003.281	Instrumentation Technician	
	01 01 2.B.0				TV System Operation Monitor	2094	003.281	Instrumentation Technician	
	01	01	2.B.04-14	2.F.03 2.A.19-1 2.F.01 2.F.03	Scanner Operation Monitor	2095	003.281	Instrumentation Technician	
REVISION NO:	REVISI	ON DAT	E:	<u>.L</u>	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PAG	E E0-5-06-17

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5		EXPERIMENT	5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduc	t
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	. Task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NO.
14	(Continued)	01	01	2.8.04-4	2.A.19-2 2.F.01	Scanner Operation Monitor	2095	003.281	Instrumentation Technician	
		01	01 .	2.B.04-15	2.F.03 2.A.12-16 2.F.01 2.F.03	Radar Transmitter Operation Monit	or 0812	003.281	Instrumentation Technician	
		01	01	2.B.04-15	2.F.03 2.A.12-17 2.F.01 2.F.03	Radar Receiver Operation Monitor	2185	003.281	Instrumentation Technician	
		01	01	2.B.04-11	2.F.03 2.A.21-2 2.F.01 2.F.03	Radiometer Operation Monitor	2096	003.281	Instrumentation Technician	
			2.8.04-8	2.A.24 2.F.01	Sferics Detector Operation Monito	r 2186	003.281	Instrumentation Technician		
	• .	01	01	2.B.04-18	2.F.03 2.A.01-5 2.F.01 2.F.03	Telescope Operation Monitor	2099	003.281	Instrumentation Technician	
15	Record global distribution of thunderstorm activity	02	01	3.0.05-2	2.8.04 5.1.01 5.8.02 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Meteorological Precursor Observer	2161	025.088 024.081	Meteorologist Geophysicist	
		04	01	3.C.05-2	2.8.09 2.8.04 5.I.01 5.8.02 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2 2.A.01-5 2.8.09	Meteorological Precursor Classifi	er 2166	025.088 024.081	Meteorologist Geophysicist	
REV	ION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW	APPROVED	BY: G	RH SERIES ES-1-A	PAGE E0-5-06-18

EXPERIMENT CREW TASK STATEMENT CREW TA		uttle Sortie	MODE: A - Shu	MISSION		rth Observations	PE: ES-1 Ea	F			LINE: EARTH RESOURCES	DISCI
NO. DESCRIPTION NO. NO. NO. TITLE NO. NO. NO. TITLE NO.	· Experiment Conduct	INCTION: 06 -	BASIC FU		5.0 Disaster Assessment	XPERIMENT:	E	- 5	/load EO	IMENT AREA: Sortie Lab Pag	EXPE	
NO. DESCRIPTION NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE	REFERENC	JPATIONAL SKILL	PRIMARY OCCU			, TASK - SKILL	NDENCY NO.	TASK DEPE			CREW TASK STATEMENT	(
04	.XO.	TITLE		NO.	NO.	TITLE	SECONDARY	PRIMARY	- 1		DESCRIPTION	NO.
04					· 1	į į	13.C.05-2				(Continued)	15
04			. •]		3.C.05-2				•	ļ
16 Perform survetilance of potential wildfire areas			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		2077	Scanner Data Classifier	3.C.05-2		01	04		
04			Geophysicist	024.081	2109	Radar Data Classifier	2.A.12-16	2.8.04-15	01	04	•	
16 Perform surveillance of potential wildfire areas 10			Geophysicist	024.081	2078	Radiometer Data Classifier	2.A.21-2	2.B.04-11	01	04		
Camera Control Actuator Camera Control A			Geophysicist	024.081	2170	Sferics Detector Data Classifier	2.A.24	2.B.04-8	01	04	•	
15			Geophysicist	024.081	2010	Telescope Data Classifier	2.A.01-5 2.B.04-18	2.B.09	01	04	•	
Perform surveillance of potential wildfire areas 02 01 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.24		ion Technician ion Technician ion Technician ion Technician ion Technician ion Technician	Instrumentat Instrumentat Instrumentat Instrumentat Instrumentat Instrumentat	003.281 003.281 003.281 003.281 003.281	0245 2187 2187 2187 2187 2187	Camera Control Actuator Recorder Control Actuator Recorder Control Actuator Recorder Control Actuator Recorder Control Actuator Recorder Control Actuator	2.A.17-3 2.A.17-4 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	2.8.04-12 2.8.04-13 2.8.04-14 2.8.04-4 2.8.04-15 2.8.04-11 2.8.04-8	01 01 01 01 01 01	15 15 15 15 15 15		
potential wildfire areas 3.C.05-4 3.C.05-5 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.24					0245	Camera Control Actuator	2.A.01-5					
2.c.01-1					2161	Meteorological Precursor Observer	3.C.05-4 3.C.05-5 3.C.06-7 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5	3.C.05-2	01	02		
	E E0-5-06-1	SERIES ES-1-A	<u> </u>	BY: GRH	APPROVED	PREPARED BY: JHL/GRH/FMW A		л `E:	VISION NOT REVISION DATE:			

DISC	IPLINE: EARTH RESOURCES				FPE: ES-1	l Earth Observations		MISSION	MODE: A - Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Payl	oad EO-S	,		EXPERIMENT	T: 5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduct	;	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DE	PENDENCY NO	D. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL		RENCE OTE
NO.	DESCRIPTION	NO.	NO.	PRIMAR	SECONDAR	TITLE	NO.	ΝО.	TITLE		WO.
16	(Continued)	02	01	3.C.05-3	3.C.05-2 3.C.05-4 3.C.05-5 3.C.06-7	Artificial Precursor Observer	2162	024.081	Geophysicist		
					3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1						
		02	01	3.C.05-4	2.C.01-1 3.C.05-2 3.C.05-3 3.C.05-5 3.C.06-7 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.21-2	Topographical Precursor Observer	2163	024.081	Geophysicist		
	-	02	01	3.C.05-5	2.C.01-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.24 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1	Precursor Disaster Observer	2164	024.081	Geophysicist		-
REV	ON NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW A	APPROVED	BY: GRH	SERIES ES-1-A	PAGE E0-5-	-06-20

DISC	IPLINE: EARTH RESOURCES				FPE: ES-1 E	Earth	n Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	load EO-	5		EXPERIMENT	r: 5.	.O Disaster Assessment		BASIC FU	INCTION: 06 - Experiment Conduct	
-	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO). C	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
٧٥.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	Y	TITLE	NO.	NO.	TITLE	NO.
17	Review data collected for quality and usefulness	11	01	3.C.05-1	3.C.06-1 3.C.06-6 3.C.06-9 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09		eological Precursor Data Evaluator	2122	024.081	Geophysicist	
					2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2					·	
		11	01	3. C. 05-2	2.A.01-5 3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 3.C.06-12	ı	eteorological Precursor Data Evaluat	or 2132	025.288 025.088 024.081	Weather Observer Meteorologist Geophysicist	
				,	3.C.06-13 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17						
,,,,,,	TISION NO:		SION DA		2.A.21-2 2.A.24 2.A.01-5		EPARED BY: JHL/GRH/EMW AP		BY: GRH	SERIES ES-1-A P	AGE E0-5-06-21

DISC	IPLINE: EARTH RESOURCES	•	······································		FPE: ES-1 Ea	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXP	RIMENT AREA: Sortie Lab Paylo	oad E0-5			EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduc	et .
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
17	(Continued)	11	01	3.C.05-3	3. C. 06-5 3. C. 06-7 3. C. 06-9 3. C. 06-10 3. C. 06-11 2. F. 03-2 2. F. 03-3 2. A. 27-4 2. A. 19-1 2. A. 19-1 2. A. 12-16 2. A. 12-17 2. A. 21-2 2. A. 21-2 2. A. 21-2 2. A. 21-2 2. A. 01-5 3. C. 06-2 3. C. 06-3 3. C. 06-9 3. C. 06-9 3. C. 06-10 3. C. 06-11 2. F. 03-2 2. F. 03-3 2. A. 27-4 2. A. 19-1 2. A. 19-2	Artificial Precursor Data Evaluator Topographical Precursor Data Evaluato	2133	024.081	Geophysicist	NO.
					2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					
REV	SION NO: REVISION DATE:				1	PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GRH	SERIES ES-1-A	PAGE E0-5-06-22

NO. DESCRIPTION NO. NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE NO. 17 (Continued) 18 01 3.C.05-5 3.C.05-4 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-10 2.F.03-3 2.C.05-10 2.F.03-10	DISC	IPLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	7
NO. DESCRIPTION NO. NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE NO. 17 (Continued) 18 01 3.C.05-5 3.C.05-4 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-5 3.C.05-10 2.F.03-3 2.C.05-10 2.F.03-10	EXPE	RIMENT AREA: Sortie Lab Paylo	oad EO-5			EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduct	
NO. DESCRIPTION NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE NO. NO. TITLE NO. NO. TITLE NO. NO. TITLE NO. NO. TITLE NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. NO. TITLE NO. NO. NO. NO. NO. NO. NO. NO. NO. NO.		CREW TASK STATEMENT			TASK DEI	ENDENCY NO.	TASK - SKILL		<u> </u>	PRIMARY OCCUPATIONAL SKILL	REFERENCE
3.C. 06-5 3.C. 06-5 3.C. 06-6 3.C. 06-9 3.C. 0	NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
11 01 3.C.05-10 2.F.03-2 2.A.04-2 2.A.04-2 2.A.05-2 2.A.04-2	17	(Continued)	וו	01	3.C.05-5	3. C. 06-4 3. C. 06-5 3. C. 06-7	Precursor Disasters Data Evaluator	2135	024.081	Geophysicist	
1				·		3.C.06-10 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2					
11						2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2					
11			11	01	3.C.05-1	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17	Earthquake Data Evaluator	2124	024.081	Geophysicist	
			11	01	3.C.06-2	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17		2148	025.088	Meteorologist	
PREVISION NOT TREVISION DATE: TREPARED RY DRIVEN TAPPROVEN RY GREET TREE TORCE FIGURE	REV	ISION NO:	REVIS	ION DAT	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PAGE	E0-5-06-23

DISCI	IPLINE: EARTH RESOURCES			FPE: ES-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT		OPER. TASK I	DEPENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO. PRIMA	RY SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
17	(Continued)	11	01 3.0.06	2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17	Tornado Data Evaluator	2149	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		77	01 3.C.06	2.A.21-2 2.A.24-2 2.A.01-5 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-1 2.A.12-16 2.A.12-17	Tidal Wave Data Evaluator	2150	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01 3. C. 06	2.A.21-2 2.A.24 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16	Flood Data Evaluator	2151	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
				2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					
REV	ISION NO:	REVISI	ON DATE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A P.	AGE E0-5-06-24

DISCI	IPLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO-!	5		EXPERIMENT:	5.0 Disaster Assessment		BASIC F	UNCTION: 06 - Experiment C	onduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKI	LL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		NOTE NO.
17	(Continued)	11	01	3.C.06-6	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2	Volcanic Eruption Data Evaluator	2152	024.081 024.081 018.188	Geophysicist Geologist Surveyor, Geodetic		
		11	01	3.C.06-7	2.A.24 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16	Forest Fire Data Evaluator	2153	024.081	Geophysicist		
		11	01	3.C.06-8	2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09	Range Fire Data Evaluator	2154	024.081	Geophysicist	•	
					2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5						
REV	VISION NO: REVISION DATE:					PREPARED BY: JHL/GRH/EMW	APPROVED	PROVED BY: GRH SERIES ES-1-A PAGE E0-5-06			E0-5-06-2

DISC	PLINE: EARTH RESOURCES			I	FPE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttl	le Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load E0-5	5	1	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Exp	periment Conduc	t
	CREW TASK STATEMENT		OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPAT	rional skill	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	Ti	TLE	NO.
17	(Continued)	11	01	3.C.06-9	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2 A 19-1	Landslide Data Evaluator	2155	024.081	Geophysicist		
	11 01 3.C.				2.A.2/-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.F.03-2	Snowslide Data Evaluator	2156	024.081	Geophysicist		
					2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5 2.F.03-2	Silvasi ide baca Evaluaçõi	1	024.001	deaphysicist		
		11	01	3.C.06-11	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2	Land Subsidence Data Evaluator	2157	024.081	Geophysicist		
REV	ISION NO:	REVISI	ON DAT	E:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SEI	RIES ES-1-A	PAGE E0-5-06-26

DISC	IPLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5		EXPERIMENT	F: 5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment	Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEI	PENDENCY NO	D. TASK - SKILL			PRIMARY OCCUPATIONAL SKI	LL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE		NO.
17	(Continued)	11'	01	3.C.06-12	2.F.03-3 2.A.27-4 2.B.09 2.A.04-2	Drought Data Evaluator	2158	024.081	Geophysicist		
		17	01	3.C.06-13	2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-1 2.A.19-1 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Blizzard Data Evaluator	2159	024.081 025.089 025.288	Geophysicist Meteorologist Weather Observer		
18	Identify irrelevant data	04	01	3.C.05-1	3.C.06-1 3.C.06-6 3.C.06-9 2.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-1 2.A.12-17 2.A.21-2 2.A.21-2	Geological Precursor Data Classi	fler 2188	024.081 024.081	Geophysicist Geologist		
REV	ISION NO:	REVIS	ION DAT	E:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-	A PAGE	E0-5-06-27

DISC	IPLINE: EARTH RESOURCES			1	FPE: ES-1 I	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	oad EO-5	i		EXPERIMENT	: 5.0 Disaster Assessment		BASIC FU	INCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	. DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	Y TITLE	NO.	NO.	TITLE	NO.
NO.	(Continued)		NO.	3.C.05-2 3.C.05-3	3. C. 06-2 3. C. 06-3 3. C. 06-4 3. C. 06-5 3. C. 06-9 3. C. 06-10 3. C. 06-12 3. C. 06-13 2. F. 03-2 2. A. 27-4 2. B. 09 2. A. 12-16 2. A. 12-17 2. A. 21-2 2. A. 24-2 2. A. 24-2 2. A. 25-2 2. A. 26-5 3. C. 06-5 3. C. 06-9 3. C. 06-10 3. C. 06-10 3. C. 06-10 3. C. 06-11 2. F. 03-2 2. A. 27-4 2. B. 09 2. A. 27-4 2. B. 09 2. A. 27-4 2. B. 09 2. A. 19-1 2. A. 19-1 2. A. 19-1	Meteorological Precursor Data Classifier Artificial Precursor Data Classifier	2189 2190	024.081 025.088 025.288	Geophysicist Meteorologist	
					2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					
REV	ISION NO:	REVIS	ION DAT	E:		PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GR	SERIES ES-1-A PA	GE E0-5-06-28

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	Earth Observations		MISSION	MODE: A - S	huttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	oad EO-5			EXPERIMENT:	: 5.0 Disaster Assessment		BASIC FU	JNCTION: 06	- Experiment Condu	ct
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCC	UPATIONAL SKILL	REFERENC NOTE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	Y TITLE	NO.	NO.		TITLE	NO.
18	(Continued)	04	01	3.C.05-4	3.C.06-1 3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-9	Topographical Precursor Data Classif	ler 2191	024.081	Geophysicist	:	
					3.C.06-9 3.C.06-10 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2						
					2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17			·		· .	
		04	01	3.C.05-5	2.A.24 2.A.01-5 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-7 3.C.06-8	Precursor Disasters Data Classifier	2192	024.081	Geophysicist		
				·	3.C.06-9 3.C.06-10 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2					:	
					2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					·	
REV	ISION NO:	REVIS	SION DAT	re:	<u> </u>	PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GR	<u> </u> H	SERIES ES-1-A	PAGE E0-5-06-29

DISC	IPLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload EO-	•6		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL	···		PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
18	(Continued)	04	01	3.C.06-1	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17	Earthquake Data Classifier	2193	024.081 024.081 018.188	Geophysicist Geologist Surveyor, Geodetic	
·		04	01	3.C.06-2	2.A.21-2 2.A.24 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16	Hurricane Data Classifier	2194.	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		04	01	3. C.0 6-3	2.A.12-17 2.A.21-2 2.A.21-2 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2	Tornado Data Classifier	2195	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
					2.A. 12-16 2.A. 12-17 2.A. 21-2 2.A. 24 2.A. 01-5	· · · · · · · · · · · · · · · · · · ·				
REV	VISION NO:	REVIS	SION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	CH SERIES ES-1-A	PAGE E0-5-06-30

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduc	:t
•	CREW TASK STATEMENT	CREW FUNCT	OPER.	TASK DEF	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
18	(Continued)	04	01	3.C.06-4	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17	Tidal Wave Data Classifier	2196	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
İ	!	04	01	3.C.06-5	2.A.21-2 2.A.24 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16	Flood Data Classifier	2197	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		04	01	3.C.06-6	2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1	Volcanic Eruption Data Classifier	2198	024.081 024.088 018.188	Geophysicist Geologist Surveyor, Geodetic	
				,	2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					
REVI	ISION NO:	REVIS	ION DAT	E:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	H SERIES ES-1-A	PAGE E0-5-06-3

DISC	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	oad EO-	5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	INCTION: 06 - Experiment Conduc	t
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEF	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCI
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝΟ.	TITLE	NOTE NO.
18	(Continued)	04	01	3.C.06-7	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09	Forest Fire Data Classifier	2199	024.081	Geophysicist	
		04	01	3.C.06-8	2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5 2.F.03-2 2.F.03-2 2.F.03-2 2.F.03-2 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2	Range Fire Data Classifier	2200	024.081	Geophysicist	
		04	01	3.C.06-9	2.A.24 2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Landslide Data Classifier		024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DAT	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	H SERIES ES-1-A	PAGE E0-5-06-3

DISCI	PLINE: EARTH RESOURCES			I	FPE: ES-1 E	arth Observations		MISSION A	IODE: A - Shuttle S	ortie		
EXPE	RIMENT AREA: Sortie Láb Pay	load EO-	5]	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Expe	eriment Cond	uct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATION	ONAL SKILL		REFERENCE
ĸо.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TIT	LE		NOTE NO.
18	(Continued)	04	01	3.C.06-10	2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1	Snowslide Data Classifier	2202	024.081	Geophysicist			
		04	01	3.C.06-11	2.F.03-3 2.A.27-4 2.B.09 2.A.04-2	Land Subsidence Data Classifier	2203	024.081	Geophysicist	· .	;	
		04	01	3.C.06-12	2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.F.03-2 2.F.03-3	Drought Data Classifier	2204	024.081	Geophysicist			
					2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					·	•	
						:			!		;	
REV	SION NO:	REVIS	SION DAT	re:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GF	RH SERI	ES ES-1-A	PAGE	E0-5-06-33

EXPERIMENT A									NODE: A - Shuttle Sortie	
	REA: Sortie Lab Pay	load EO-	-5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	NCTION: 06 - Experiment Conduct	
CREW TA	SK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. I	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
18 (Continu	ued)	04	01	3.C.06-13	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2 2.A.21-2	Blizzard Data Classifier	2205	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
20 Evaluate cartogra data	e photographic/ phic quality of	11	01	3.C.05-1	2.C.01-1 3.C.06-1 3.C.06-9 3.C.06-9 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.19-1	Geological Precursor Data Evaluator	2122	024.081	Geophysicist	
	· .	11	01	3.C.05-2	2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1 3.C.06-2 3.C.06-3 3.C.06-5 3.C.06-7 3.C.06-9 3.C.06-9 3.C.06-10	Meteorological Precursor Data Evaluator on next page	2132	025.288 025.088 024.081	Weather Observer Meteorologist Geophysicist	
REVISION NO:	·	REVIS	ION DAT	re:			PPROVED	BY: GRH	SERIES ES-1-A PA	GE E0-5-06-34

DISC	PLINE: EARTH RESOURCES				FPE: ES-1	Earth Observations	<u></u>	MISSION M	ODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-5	;		EXPERIMENT	: 5.0 Disaster Assessment		BASIC FUN	ICTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL		P	PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDAR	Y TITLE	NO.	NO.	TITLE	NOTE NO.
20	(Continued)		01	3.C.05-3	from previo 3.C.06-13 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.19-1 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24-2 2.A.01-5 3.C.06-5 3.C.06-9 3.C.06-10 3.C.06-10 3.C.06-10 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.12-16 2.A.12-17 2.A.12-16 2.A.12-17 2.A.24 2.A.01-5	Artificial Precursor Data Evaluator	2133	024.081	Geophysicist	
REV	ISION NO:	REVIS	SION DAT	re:		PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GRH	SERIES ES-1-A PAG	GE E0-5-06-35

DISC	IPLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	ERIMENT AREA: Sortie Lab Pay	/load EO	-5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Condu	ct
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
20	(Continued)	11	01	3.C.05-4	2.C.01-1 3.C.06-1 3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-9	Topographical Precursor Data Evalua	ator 2134	024.081	Geophysicist	
			. 01	3. C. 05-5	3.C.06-10 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1	Precursor Disasters Data Evaluator	2135	024.081	Geophysicist	
					3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-8 3.C.06-9 3.C.06-10 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5		2109	V2.7.001	Copigatoria	
REV	/ISION NO:	REVIS	ION DAT	и `E:		PREPARED BY: JHL/GRH/EMW	PPROVED	BY: GRH	SERIES ES-1-A	PAGE E0-5-06-36

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	th Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lay Pay	load EO-	5		EXPERIMENT:	5.0 Disaster Assessment	_	BASIC FU	ONCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
20	(Continued)	11	01	3.C.06-1	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2	Earthquake Data Evaluator	2124	024.081 024.081 018.188	Geologist Geophysicist Surveyor Geodetic	
		בו	01	3.C.06-2	2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1	Hurricane Data Evaluator	2148	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-3	2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1	Tornado Data Evaluator	2149	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
REV	ISION NO:	REVIS	BION DAT	E:	2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	REPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PA	GE E0-5-06-37

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO	-5		EXPERIMENT	: 5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NO.
20	(Continued)	11	01	3.0.06-4	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2	Tidal Wave Data Evaluator	2150	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-5	2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1	Flood Data Evaluator	2151	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-6	2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1 2.F.03-2 3.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-1 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2	Volcanic Eruption Data Evaluator	2152	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
REV	ISION NO:	REVIS	SION DAT	re:	2.A.24 2.A.01-5	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GRH	SERIES ES-1-A PAG	GE E0-5-06-38

DISCIPLI	NE: EARTH RESOURCES				FPE: ES-1 Ea	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPERIM	ENT AREA: Sortie Lab Payl	load EO-	5		EXPERIMENT:	5.0 Disaster Assessment		BASIC FL	JNCTION: 06 - Experiment Conduct	,
CRI	EW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
20 (0	Continued)	11	01	3.C.06-7	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4	Forest Fire Data Evaluator	2153	024.081	Geophysicist	H ()
			·		2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5					
	, 0	17	01	3.C.06-8	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2	Range Fire Data Evaluator	2154	024.081	Geophysicist	
			01	3.C.06-9	2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5	Landslide Data Evaluator	2155	024.081	Geophysicist	
REVISIO	ON NO:	REVIS	ION DAT	`E:		PREPARED BY: JHL/GRH/EM	APPROVED	BY: GR	H SERIES ES-1-A PA	GE E0-5-06-39

EXPE	RIMENT AREA: Sortie Lab Pa						MISSION MODE: A - Shuttle Sortie			
L		nyload EO-5	5 I	EXPERIMENT	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct		
	CREW TASK STATEMENT	CREW OF FUNCT. EN	PER. TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE	
NO.	DESCRIPTION		NO. PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.	
20	(Continued)	11 6	3.C.06-10	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2	Snowslide Data Evaluator	2156	024.081	Geophysicist		
		11 (01 3.C.06-11	2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4	Land Subsidence Data Evaluator	2157	024.081	Geophysicist		
				2.8.09 2.A.04-2 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5						
	1	11	01 3.C.06-12	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Drought Data Evaluator	. 2158	024.081	Geophysicist		
REV	I ISION NO:	REVISIO	N DATE:	- 	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	SERIES ES-1-A PAG	E E0-5-06-40	

DISC	PLINE: EARTH RESOURCES			F	PE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	oad EO-5		E	XPERIMENT:	5.0 Disaster Assessment		BASIC FU	ONCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
20	(Continued)	Ţ		3.C.06-13	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.12-16 2.A.12-17 2.A.21-2 2.A.21-2 2.A.24 2.A.01-5	Blizzard Data Evaluator	2159	024-081 025.088 025.288	Geophysicist Meteorologist Weather Observer	E0-2
21	Identify forest fire locations in photographs	02	01	3.C.06-7 3.C.06-7	2.F.01-1 3.C.05 2.C.01-1 5.1.01 5.B.02 2.F.01-1 3.C.05 2.C.01-1 5.I.01 5.B.02	Forest Fire Data Observer Forest Fire Data Classifier	2141	024.081	Geophysicist (Geophysicist	
22	Describe disaster process and location to ground services	05 05 05 05 05	01 01 01 01	4.A.02 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4	3.C.05 3.C.05 3.C.05 2.C.01-1 4.A.02 3.C.05 2.C.01-1 4.A.02 3.C.05 2.C.01-1 4.A.02 3.C.05 2.C.01-1 4.A.02	Radio Communicator Geological Precursor Communicator Meteorological Precursor Communicator Artificial Communicator Topographical Communicator	0206 2206 2207 2208 2209	003.187 024.081 024.081 025.088 024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DA	<u>) </u>		PREPARED BY: JHL/GRH/EMW APPI	ROVED	BY: JHL/GI	RH/EMW SERIES ES-1-A PAG	E E0-5-06-41

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 I	Earth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Paylo	oad EO-5		F	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE .	NO.	NO.	TITLE	NO.
22	(Continued)	05	01	3.C.05-5	3.C.06 2.C.01-1	Precursor Disaster Communicator	2210	024.081	Geophysicist	
		05	01 .	3.0.06-1	4.A.02 3.C.05 4.A.02 2.C.01-1	Earthquake Disaster Communicator	2211	024.081	Geophysicist :	
		05	01	3.0.06-2	3.C.05 4.A.02 2.C.01-1	Hurricane Disaster Communicator	2212	024.081	Geophysicist	
		05	01	3.0.06-3	3.C.05 4.A.02 2.C.01-1	Tornado Disaster Communicator	2213	024.081	Geophysicist	
		05	01	3.C.06-4	3.C.05 4.A.02 2.C.01-1	Tidal Wave Disaster Communicator	2214	024.081	Geophysicist	
		05	01	3.C.06-5	3.C.05 4.A.02 2.C.01-1	Flood Disaster Communicator	2215	024.081	Geophysicist	
		05	01	3.C.06-6	3.C.05 4.A.02 2.C.01-1	Volcanic Eruption Disaster Communicator	2216	024.081	Geophysicist	
	, .	05	01	3.C.06-7	3.C.05 4.A.02 2.C.01-1	Forest Fire Disaster Communicator	2217	024.081	Geophysicist	
		05	01	3.C.06-8	3.C.05 4.A.02 2.C.01-1	Range Fire Disaster Communicator	2218	024.081	Geophysicist	
		05	01	3.C.06-9	3.C.05 4.A.02 2.C.01-1	Landslide Disaster Communicator	2219	024.081	Geophysicist	
		05	01	3.C.06-10	3.C.05 4.A.02 2.C.01-1	Snowslide Disaster Communicator	2220	024.081	Geophysicist	
		05	01	3.C.06-11		Land Subsidence Disaster Communicator	2221	024.081	Geophysicist	
		05	10	3.C.06-12	3.C.05 4.A.02 2.C.01-1	Drought Disaster Communicator	2222	024.081	Geophysicist	
		05	01	3.C.06-13	3.C.05 4.A.02 2.C.01-1	Blizzard Disaster Communicator	2223	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DAT	<u>т </u>		PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: G	RH SERIES ES-1-A PA	GE E0-5-06-42

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ear	th Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payl	oad EO-5	i		EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL		Ì	PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
25	Acquire disaster sites with observation telescope	10	01	2.8.08	3.C.06 2.A.01-5 2.B.04-18 3.C.05	Telescope Pointing Controller	0921	xxx.xxx	Special Spaceflight Skill	E0-3
		04	01	3.C.06-1	2.8.09 4.6.01-3 2.8.09 3.C.05 2.A.01-5 2.8.04-18	Earthquake Disaster Identifier	2224	024.081	Geophysicist	
	· · · · · · · · · · · · · · · · · · ·	04	10	3.C.06-2	4.B.01-3 2.B.09 3.C.05 2.A.01-5 2.B.04-18	Hurricane Disaster Identifier	2225	024.081	Geophysicist	
		04	01	3.C.06-3	4.8.01-3 2.8.09 3.C.05 2.A.01-5 2.8.04-18	Hurricane Disaster Identifier	2226	024.081	Geophysicist	
		04	01	3.C.06-4	4.8.01-3 2.8.09 3.C.05 2.A.01-5 2.8.04-18	Tidal Wave Disaster Identifier	2227	024.081	Geophysicist	
		04	01	3.C.06-5	4.8.01-3 2.8.09 3.C.05 2.A.01-5 2.8.04-18	Flood Disaster Identifier	2228	024.081	Geophysicist	
		04	01	3.C.06-6	4.8.01-3 2.8.09 3.C.05 2.A.01-5 2.8.04-18	Volcanic Eruption Disaster Identifie	r 2229	024.081	Geophysicist	
		04	01	3.C.06-7	4.8.01-3 2.8.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Forest Fire Disaster Identifier	0941	024.081	Geophysicist	
REV	ISION NO:	REVIS	ION DAT	E:	I I	PREPARED BY: JHL/GRH/EMW AP	PROVED	BY: GRH	SERIES ES-1-A PA	GE E0-5-06-43

DISCI	PLINE: EARTH RESOURCES			F	PE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	5	F	EXPERIMENT	5.0 Disaster Assessment		BASIC FU	JNCTION: 06 - Experiment Conduct	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
25	(Continued)	04	01	3.C.06-8	2.B.09 3.C.05 2.A.01-5 2.B.04-18	Range Fire Disaster Identifier	2230	024.081	Geophysicist	
	· · ·	04	oi	3.C.06-9	4.B.01-3 2.B.09 3.C.05 2.A.01-5 2.B.04-18	Landslide Disaster Identifier	2231	024.081	Geophysicist	
		04	01	3.C.06-10	4.8.01-3 2.8.09 3.C.05 2.A.01-5 2.8.04-18	Snowslide Disaster Identifier	2232	024.081	Geophysicist	
	,	04	01	3.C.06-11	4.8.01-3 2.8.09 3.C.05 2.A.01-5 2.8.04-18	Land Subsidence Disaster Identifier	2233	024.081	Geophysicist	
		04	01	3.C.06-12	4.B.01-3 2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Drought Disaster Identifier	2234	024.081	Geophysicist	
		04	01	3.C.06-13	4.B.01-3 2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Blizzard Disaster Identifier	2235	024.081	Geophysicist	
26	Monitor sensor output electronic quality	01 01 01 01 01	01 01 01 01 01	2.8.04013 2.8.04-14 2.8.04-4 2.8.04-15 2.8.04-11 2.8.04-8	2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2	TV Data Quality Monitor Scanner Data Quality Monitor Scanner Data Quality Monitor Radar Data Quality Monitor Radiometer Data Quality Monitor Sferics Detector Data Quality Monito	0922 0869 0869 0944 0870 0882	003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
		oi 0i	ői	2.B.04-18	2.A.01-5	Telescope Data Quality Monitor	2236	003.281	Instrumentation Technician	
REVI	ISION NO:	REVIS	ION DA	re:		PREPARED BY: JHL/GRH/EMW AF	PROVED	BY: G	RH SERIES ES-1-A PAGE	E0-5-06-44

DISCI	PLINE: EARTH RESOURCES			I	PPE: ES-1 E	arth Observations		MISSION I	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	·5	1	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU (See No	NCTION: 10 - Unscheduled Main te EO-1)	tenance
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
7	Repair/replace any malfunctioning components	26 26	01	2.A.19-2 2.A.17-3	2.C.13 4.D.18 2.C.13	Scanner Module Remover	0904	003.181	Electrical Technician Optical Technician	
		26	01	2.A.17-4	4.D.18 12.C.13	Camera Module Remover	0158	003.181	Electrical Technician Optical Technician	
		26	01	2.A.12-16	4.D.18 2.C.13 4.D.18	Radar Transmitter Module Remover	0615	003.181 003.181	Electrical Technician Electrical Technician	
	,	26	01	2.A.12-17		Radar Receiver Module Remover	0624	003.181	Electrical Technician	
	,	26	01	2.A.19-1	2.C.13 4.D.18	Scanner Module Remoyer	0904	003.181	Electrical Technician	
	, ·	26	01	2.A.21-2	2.C.13 4.D.18	Radiometer Module Remover	0638	003.181	Electrical Technician	
		26	01	2.A.24	2.C.13 4.D.18	Sferics Detector Module Remover	0946	003.181	Electrical Technician	
		26	01	2.A.04-2	2.C.13 4.D.18	TV System Module Remover	0345	003.181 007.081	Electrical Technician Optical Technician	,
		26	01	2.A.01-5	2.C.13 4.D.18	Telescope Module Remover	0187	003.181	Electrical Technician Optical Technician	
		26	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
	,	26	01	2.B.04-12	4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
	,	26	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
		26	01	2.8.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
		26	01	2.8.04-15	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
		26	01	2.8.04-14	4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
1		26	01	2.B.04-11	4.0.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
		26	01	2.B.04-8	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
	·	26	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician	
REV	ISION NO:	REVIS	SION DA	TE:	- 1	PREPARED BY: JHL/GRH/EMW	APPROVED	BY: G	RH SERIES ES-1-A	PAGE E0-5-10-1

DISCI	PLINE: EARTH RESOURCES			I	PPE: ES-1 E	arth Observations		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	/load EO-	5	I	EXPERIMENT:	5.0 Disaster Assessment		BASIC FU	INCTION: 10 - Unscheduled Mainten	ance
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
×0.	DESCRIPTION	NO.		PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
7	(Continued)	27	01	2.8.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.8.04-12	2.C.13	Earth Survey C/D Equipment Module Installer	0927	828.281	Electronics Mechanic	
		27	01	2.8.04-13		Earth Survey C/D Equipment Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
	<i>t</i> • •	27	01	2.B.04-15		Installer Earth Survey C/D Equipment Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
		27	01	2.8.04-14	4.D.18 2.C.13	Installer Earth Survey C/D Equipment Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
		27	01	2.B.04-11	4.D.18 2.C.13	Installer Earth Survey C/D Equipment Module	0927	003.181	Electrical Technician Electronics Mechanic	
	•	27	01	2.8.04-8	4.D.18 2.C.13	Installer Earth Survey C/D Equipment Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
	•	27	01	2.6.04-18	4.0.18 2.C.13	Installer Earth Survey C/D Equipment Module	0927	003.181 828.281	Electrical Technician Electronics Mechanic	
		27	01	2.B.04-4	4.0.18 2.C.13	Installer Earth Survey C/D Equipment Module	0927	003.181 828.291	Electrical Technician Electronics Mechanic	i.
	·	27	01	2.A.17-3	4.D.18 4.C.02	Installer Camera Module Installer	ļ	003.121 828.281	Electrical Technician Electronics Mechanic	
		27	01	2.A.17-4	4.C.07 4.C.02	Camera Module Installer	0160	003.181	Electrical Technician Optical Technician	l
	1		1	2.A.19-2	4.C.07		1	003.181 007.081	Electrical Technician	
		27	01	i	4.C.02 4.C.07	Scanner Module Installer	1	003.181	Optical Technician Electrical Technician Electrical Technician	
1	1	27	01	2.A.19-1	4.C.02 4.C.07	Scanner Module Installer	1	003.181	i	
	•	27	01	2.A.12-16	4.C.07	Radar Transmitter Module Installer	0616	003.181	Electrical Technician	
1		27	01	2.A.12-17	4.C.02 4.C.07	Radar Receiver Module Installer	0623	003.181	Electrical Technician	
İ		27	01	2.A.21-2	4.C.02 4.C.07	Radiometer Module Installer	0637	003.181	Electrical Technician	
		27	01	2.A.24	4.C.02 4.C.07	Sferics Detector Module Installer	0947	003.181	Electrical Technician	
		27	01	2.A.04-2	4.C.02	TV Systems Module Installer	0346	007.081	Optical Technician	•
		27	01	2.A.01-5	4.C.07 4.C.02 4.C.07	Telescope Module Installer	0188	003.181 007.081 003.181	Electrical Technician Optical Technician Electrical Technician	
}			}						aroot, rour recimientur	
REV	ISION NO:	REVIS	ION DAT	re:	l i	PREPARED BY: JHL/GRH/EMW A	PPROVED	BY: GRH	SERIES ES-1-A PA	GE E0-5-10-2

DISC	IPLINE: EARTH RESOURCES			F	PE: ES-1 Ea	rth Observations		MISSION	MODE: A - Shuttle Sortie	
EXP	RIMENT AREA: Sortie Lab Payl	oad EO-	5	E	EXPERIMENT	5.0 Disaster Assessment		BASIC FU	INCTION: 10 - Unscheduled Maintenar	·
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NO.
7	(Continued)	28 28 28 28 28 28 28 28 28 28	NO.	2.B.04-4 2.B.04-6 2.B.04-13 2.B.04-15 2.B.04-14 2.B.04-11 2.B.04-8 2.B.04-18 2.A.17-3 2.A.17-4 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.04-2 2.A.19-2 2.A.01-5	4.C.02 4.C.07 4.C.02 4.C.07	Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Earth Survey C/D Equipment Repaire Camera Repairer Camera Repairer Radar Transmitter Repairer Radar Receiver Repairer Scanner Repairer Sferics Detector Repairer TV Systems Repairer Scanner Repairer Telescope Repairer	2065 r 2065 r 2065 r 2065 r 2065 r 2065 r 2065	828.181 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 003.181 828.281 007.081 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electrical Technician Electronics Mechanic Electronics Mechanic Optical Technician Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
RE	VISION NO:	REVIS	ION DA	TE:		PREPARED BY: JHL/GRH/EMW	APPROVED	BY: GR	SERIES ES-1-A PA	GE E0-5-10-3

DISCI	PLINE: EARTH RESOURCÉS				FPE: ES-1 Ea	rth Observations		MISSION A	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load E0-5	5		ENPERIMENT:	5.0 Disaster Assessment	<u>-</u> -	BASIC FU	NCTION: 10 - Unscheduled Maintenan	ce
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
31	Perform fault isolation	07	01	2.A.01-5	2.B.04-18 4.C.01 4.C.02 4.C.05	Telescope Fault Identifier	0885	828.281 007.081	Electronics Mechanic Optical Technician	
; ! 		07	01	2.A.19-2	4.C.07 2.B.04-14 4.C.01 4.C.02 4.C.05	Scanner Fault Identifier	0887	828.281	Electronics Mechanic	
		07	01	2.A.17-3	4.C.O7	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician	
		07	01	2.A.17-4	4.C.07 2.B.04-12 4.C.01 4.C.02 4.C.05	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician	
		07	01	2.A.19-1	4.C.07 2.B.04-14 4.C.01 4.C.02 4.C.05	Scanner Fault Identifier	0887	828.281	Electronics Mechanic	
		07	01	2.A.21-2	4.C.07 2.B.04-11 4.C.01 4.C.02 4.C.05	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic	
		07	01	2.A.24	4.C.07 2.B.04-8 4.C.01 4.C.02 4.C.05	Sferics Detector Fault Identifier	0890	828.281	Electronics Mechanic	
		07	01	2.A.04-2	4.C.07 2.8.04-13 4.C.01 4.C.02 4.C.05 4.C.07	TV System Fault Identifier	2064	828.281	Electronics Mechanic	
REV	TISION NO:	REVI	SION DA	re:		PREPARED BY: JHL/GRH/EMW AP	ROVED	BY: GRH	SERIES ES-1-A PAG	E E0-5-10-4

DISCI	PLINE: EARTH RESOURCES				FPE: ES-1 Ea	rth Resources		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load EO-	·5		EXPERIMENT	5.0 Disaster Assessment		BASIC FU	INCTION: 10 - Unscheduled Mainte	enance
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DE	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	XO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
31	(Continued)	07	01	2.A.04-1	5 2.A.12-16 4.C.01 4.C.02	Radar Transmitter Fault Identifier	0683	828.281	Electronics Mechanic	
		07	· 01	2.A.04-1	4.C.05 4.C.07 5 2.A.12-17 4.C.01 4.C.02 4.C.05	Radar Receiver Fault Identifier	0685	828.281	Electronics Mechanic	
		07	01	2.8.04	4.C.07 4.C.01 4.C.02 4.C.05	Earth Survey C/D Equipment Fault Identifier	0928	828.281	Electronics Mechanic	
	· '	07	01	4.C.04	4.C.07 4.C.01 4.C.02 4.C.05	Electronic Equipment Fault Identifier	0795	828.281	Electronics Mechanic	
		07	01	4.C.07	4.C.07 4.C.01 4.C.02 4.C.05	Optical Equipment Fault Identifier	0891	007.081	Optical Technician	
									•	
						·				
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: JHL/GRH/EMW APP	ROVED	BY: GR	H SERIES ES-1-A I	PAGE E0-5-10-5

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-1

EXPERIMENT: 1.0 BIOLOGICAL EXPERIMENTS

1.1 SEPARATION OF BIOLOGICALS

DISCI	PLINE: MATERIALS SCIENCES A	AND MANU	FACTURI.	NG 1	PPE: MS-1 Ma	terials Science and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	***
EXPE	RIMENT AREA: Sortie Lab Payl	load MS-	.1	I	EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
ΝО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	.XO.E
1	Select mixture to be separated	13	01	2.C.04-7	3.I.07-1 2.D.37-2	Biological Materials Separation Planner	2238	041-081	Biochemist	
3	Select buffer pH	13	01	3.1.07-1	2.C.04-6 2.C.04-7 2.D.37-2	Electrophoretic Separation Research Planner	1586	041.081	Biochemist	
8	Program power supply controller	13	01	3.1.07-1	2.B.06-9 4.D.13 2.C.04-6 2.C.04-7 2.D.37-2	Electrophoretic Separation Research Planner	1586	041.081	Biochemist	
		15	01	2.8.06-9	4.D.13 3.I.07-1 2.C.04-6 2.C.04-7 2.D.37-2	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
9	Connect ampoule to injection device	27	01	2.D.05-2	2.D.37-2	Ampoule Installer	1598	003.281	Instrumentation Technician	
29	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.07-1 2.C.04-7 2.D.37-2 2.8.06-9 2.C.04-6 4.D.13 2.D.05-2	Radio Communicator	0206	003.187	Radio Engineer	
	-	05	01	3.1.07-1	4.A.02 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Electrophoretic Separation Research Coordinator	2239	041.081	Biochemist	
REV	ISION NO:	REVIS	ION DA	re:	*************************************	PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A	AGE MS-1.1-04-1

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	1	FPE: MS-1 Mate	rials Science and Manufacturing in Spa	ce	MISSION MODE: A - Shuttle Sortie				
ENPE	RIMENT AREA: Sortie Lab Payl	oad MS-1	ļ		EXPERIMENT:	1.0 Biological Experiments1.1 Separation of Biologicals		BASIC FU	NCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
31	Set up experiment apparatus	18 22	01	2.C.04-6 2.C.04-6	2.D.35 2.B.06-22 1.G.01-18	Buffer Solution Unstower Buffer Solution Translocator	1552 1553	000.000	General Technical Skill General Technical Skill			
		27	01	2.C.04-6	1.G.01-2 1.G.01-6 2.D.37-2 3.I.07-1 2.D.39	Buffer Solution Installer	1551	003.281	Instrumentation Technician			
	. "	22	01	2.C.04-7 2.C.04-7	2.D.05-2 2.D.35 2.8.06-22 (2.D.36) (2.B.06-3) 1.G.01-18 1.G.01-2 1.G.01-6 2.D.05-2	Biological Material Unstower Biological Material Translocator	1557	000.000	General Technical Skill General Technical Skill	₩ S−1		
		27	01	2.D.05-2	2.C.04-7 3.I.07-1 2.D.37-2 (2.D.36) (2.B.06-3)	Ampoule Installer	1598	003.281	Instrumentation Technician	MS-1		
		.18	01	2.D.36	2.B.06-3 4.D.02	Biological Enclosure Unstower	1560	003.281	Instrumentation Technician			
Ì		18	01	2.B.05-2	4.0.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician			
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician			
}		18	01	2.A.39-1	4.D.20 4.D.02	Interferometer Unstower	1602	003.281	Instrumentation Technician			
		22	01	2.A.39-1	1.G.01-2 1.G.01-6 1.G.01-18	Interferometer Translocator	1603	000.000	General Technical Skill			
		27	01	2.A.39-1	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1	Interferometer Installer	1601	003.181	Electrical Technician			
		18	01	2.D.37-2	4.D.20 4.D.02	Electrophoretic Column Unstower	1574	003.281	Instrumentation Technician			
		22	01	2.0.37-2	1.G.01-2 1.G.01-6 1.G.01-18	Electrophoretic Column Translocator	1575	000.000	General Technical Skill			
REV	ISION NO:	REVIS	SION DA	TE:	F	PREPARED BY: GRH/EMW APP	ROVED	BY: GR	H SERIES MS-1-A P	AGEMS-1.1-04-2		

DISCI	PLINE: MATERIALS SCIENCES AN	ND MANUFA	CTURING	1	FPE: MS-1 Ma	terials Science and Manufacturing in Sp	ace	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pa	ayload MS	-1		EXPERIMENT	1.0 Biological Experiments1.1 Separation of Biologicals		BASIC FU	NCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
31	(Continued)	27	01	2.D.37 - 2	4.D.22-1 (2.D.36) (2.B.06-2 (2.D.39) (4.D.13)	Electrophoretic Column Installer	1573	003.181	Electrical Technician	MS-1		
		18	01	2.D.39	3.I.07-1 4.D.20 4.D.02	Buffer/Waste Separator Unstower	1541	003.281	Instrumentation Technician			
		22	01	2.D.39	1.G.01-2 1.G.01-6	Buffer/Waste Separator Translocator	1542	000.000	General Technical Skill			
		27	01	2.0.39	1.G.01-18 2.D.37-2 4.D.22-1 (2.D.36) 2.B.05-20 4.D.13 3.I.07-1	Buffer/Waste Separator Installer	1540	003.181	Electrical Technician	MS-1		
		18	01	2.D.40	1.G.03-5 4.D.20 4.D.02	Gas Elimination/Cooling System '	1525	003.281	Instrumentation Technician			
		22	01	2.D.40	1.G.01-2 1.G.01-6	Gas Elimination/Cooling System Translocator	1526	000.000	General Technical Skill			
		27	01	2.D.40	1.G.01-18 2.D.37-2 4.D.22-1 (2.D.36) 2.B.06-21 4.D.13 3.I.07-1 1.G.03-5	Gas Elimination/Cooling System Installer	1524	003.181	Electrical Technician	MS-1		
		18	01	2.A.04-3	1.G.03-6 4.D.20	TV Camera Unstower	0054	000.000	General Technical Skill			
		22	01	2.A.04-3	4.D.02 1.G.01-2 1.G.01-6	TV Camera Translocator	0026	000.000	General Technical Skill			
		27	01	2.A.04-3	1.G.01-18 1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.09	TV Camera Installer	0306	003.181	Electrical Technician			
REV	ISION NO:	REVIS	SION DA	TE:	<u> </u>	PREPARED BY: GRH/EMW AF	PROVED	BY: GR	SERIES MS-1-A P	AGE MS-1.1-04-3		

DISC	IPLINE: MATERIALS SCIENCES	AND MANUF	ACTURING	1	FPE: MS-1 Mat	erials Science and Manufacturing i	1 Space	MISSION	ION MODE: A - Shuttle Sortie			
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS-1	l		EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals	_	BASIC FU	ENCTION: 04 - Experiment Setup			
-	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL		Ì	PRIMARY OCCUPATIONAL SKILL	REFERENCE		
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
31	(Continued)	18	01	2.A.40-2	4.D.20 4.D.02	Densitometer Unstower		003.281	Instrumentation Technician			
		27	01 . 01	2.A.40-2 2.A.40-2	1.G.01-2 1.G.01-6 1.G.01-18 1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.8.06-8	Densitometer Translocator Densitometer Installer		003.181	General Technical Skill Electrical Technician			
32	Reconfigure experiments	26	01	2.C.04-6	2.D.37-2 3.I.07-1	Buffer Solution Remover	1554	003.281	Instrumentation Technician			
		26	01	2.0.05-2	2.0.39 2.C.04-7 2.D.37-2 3.I.07-1	Ampoule Remover	2241	003.281	Instrumentation Technician	MS-1		
		27	01	2.D.05-2	(2.D.36) 2.C.04-7 2.D.37-2 3.I.07-1	Ampoule Installer	1598	003.281	Instrumentation Technician	MS-1		
		15	01	2.B.06-9	(2.D.36) 4.D.13 3.I.07-1 2.D.37-2 2.C.04-6	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician			
		26	01	2.D.37-2	2.C.04-7 4.D.22-1 (2.D.36) 2.B.06-2 2.D.39 4.D.13	Electrophoretic Column Remover	1576	003.181	Electrical Technician	MS-1		
		27	01	2.0.37-2	3.I.07-1 4.D.22-1 (2.D.36) 2.B.06-2 2.D.39 4.D.13 3.I.07-1	Electrophoretic Column Installer	1573	003.181	Electrical Technician	MS-1		
REV	Asion no:	REVIS	SION DA	TE:		PREPARED BY: GRH/EMW	APPROVED	BY: GR	SERIES MS-1-A PA	GE MS-1.1-04-4		

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFAC	TURING	I	FPE: MS-1 Ma	terials Science and Manufacturing in Sp	oace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS-	-1	1	EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
32	(Continued)	26	01	2.A.40 - 2	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1	Densitometer Remover	1458	003.181	Electrical Technician	
		27	01	2.A.40-2	2.8.06-8 1.G.01-7 2.D.37-2 2.D.36 3.I.07-1	Densitometer Installer	1457	003.181	Electrical Technician	
		26	01	2.A.39	2.B.05-8 1.G.01-7 2.D.37-2 2.D.36 3.I.07-1	Interferometer Remover	1604	003.181	Electrical Technician	
		27	01	2.A.39	2.B.06-8 1.G.01-7 2.D.37-2 2.D.36 3.I.07-1	Interferometer Installer	1601	003.181	Electrical Technician	
		26	01	2.A.04-3	2.8.06-8 1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.6.09	TV Camera Remover	0661	003.181	Electrical Technician	
		27	01	2.A.04-3	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.09	TV Camera Installer	0306	003.181	Electrical Technician	
35	Calibrate instruments	08 08	01 01	2.A.40-2 2.A.39-1	4.C.01 4.C.01	Densitometer Calibrator Interferometer Calibrator	1461 1605	003.281 003.281	Instrumentation Technician Instrumentation Technician	
			1077 5 ::	1	<u> </u>	PREDICTION DIV.	220112	DY, CP!	January Mc 1 A Jan	GE MS-1.1-04-5
REV	ISION NO:	REVIS	SION DA	IE:		PREPARED BY: GRH/EMW ' AP	PKOVED	BY: GRH	SERIES MS-1-A PA	GE 43-1.1-04-5

DISCI	PLINE: MATERIALS SCIENCES A	ARUNAM G	CTURING	F	PE: MS-1 Ma	terials Sciences and Manufacturing in	n Space	ace MISSION MODE: A - Shuttle Sortie					
EXPEI	RIMENT AREA: Sortie Lab Pay	/load MS-	1	I	EXPERIMENT:	1.0 Biological Experiments1.1 Separation of Biologicals		BASIC FU	BASIC FUNCTION: 04 - Experiment Setup				
(CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	ENDENCY NO.	TASK - SKILL	<u>_</u>	PRIMARY OCCUPATIONAL SKILL REFERENCE NOTE					
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.			
37	Define apparatus configuration	11	01	3.1.07-1	2.D.36 4.D.22-1 2.B.C5-2 2.D.15 4.D.13 2.D.37-2	Electrophoretic Separation Research Evaluator	h 1625	041.081	Biochemist				
		13	01	3.1.07-1	2.0.39 2.0.40 2.A.04-3 2.A.40-2 2.A.39-1 2.0.35 2.C.04-6 2.C.04-7 2.0.36 4.0.22-1	Electrophoretic Separation Research	h 1586	047.081	Biochemist				
	• •				2.8.06-2 2.0.15 4.0.13 2.0.37-2 2.0.39 2.0.40 2.A.04-3 2.A.40-2 2.A.39-1 2.0.35 2.C.04-6 2.C.04-7				·				
	ISION NO:		I DAT	<u> </u>	<u> </u>	PREPARED BY: GRH/EMW A	APPROVED	BY: GR	H SERIES MS-1-A	PAGE MS-1.1			

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA	CTURING		TPE: MS-1 Ma	aterials Sciences and Manufacturing in	Space	MISSION MODE: A - Shuttle Sortie			
EXPE	RIMENT AREA: Sortie Lab Pay	/load MS	-1		EXPERIMENT:	1.0 Biological Experiments		BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.	
38	Define experiment conditions	11		3.1.07-1	2.D.36 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.37-2 2.D.30 2.D.40 2.A.04-3	Electrophoretic Separation Research Evaluator	1625	041.081	Biochemist		
		13	01	3. I. 07-1	2.A.40-2 2.A.20-1 2.D.35 2.C.04-6 2.C.04-7 2.D.36 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.37-2 2.D.30 2.D.40 2.A.04-3 2.A.04-3 2.A.20-1 2.D.35 2.C.04-6 2.C.04-7	Electrophoretic Separation Research Planner	1586	041.081	Biochemist		
43	Install TV cameras	18 22 27	01 01 01	2.A.04-3 2.A.04-3 2.A.04-3	4.D.20 4.D.02 1.G.01-2 1.G.01-6 1.G.01-18 1.G.01-7 2.D.37-2 3.I.07-1	TV Camera Unstower TV Camera Translocator TV Camera Installer	0054 0026 0306	000.000	General Technical Skill General Technical Skill General Technical Skill		
REV	ISION NO:	REVIS	TAD NOIS	E:		PREPARED BY: GRH/EMW A	PPROVED	BY: GR	H SERIES MS-1-A	PAGEMS-1.1-04-7	

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	ACTURING	1	FPE: MS-1 Ma	terials Science and Manufacturing	in Space	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pay	laod MS-	-1]	EXPERIMENT:	1.0 Biological Experiments1.1 Separation of Biologicals		BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT	CREW TUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
46	Install data recording equipment	18 22 27	01 01 01	4.D.10 4.D.10 4.D.10	4.D.20 4.D.02 1.G.01-2 1.G.01-6 1.G.01-18 1.G.01-7 2.B.05-2 2.B.06-19	Data Recorder Unstower Data Recorder Translocator Data Recorder Installer	1520	003.281 000.000 003.181	Instrumentation Technician General Technical Skill Electrical Technician			
50	Checkout optical instrumentation and measuring devices	03 03 03 14 14 14	01 01 01 01 01 01	2.A.04-3 2.A.40-2 2.A.39-1 2.B.04-2 2.B.05-8 2.B.05-8	4.0.09 4.0.09 4.0.09 2.A.04-3 2.A.40-2 2.A.39-1	TV Camera Inspector Densitometer Inspector Interferometer Inspector TV System Tester Densitometer Tester Interferometer Tester	2242 2243 2060 1618	722.281 722.281 722.281 003.181 003.181 003.181	Inspector, Systems Inspector, Systems Inspector, Systems Electrical Technician Electrical Technician Electrical Technician			
REV	ISION NO:	REVIS	SION DAT	TE:		PREPARED BY: GRH/EMW	APPROVED	BY: GR	H SERIES MS-1-A	PAGE MS-1.1-04-8		

DISCI	PLINE: MATERIALS SCIENCES A	AND MANUFAC	TURING		FPE: MS-1 Ma	terials Science and Manufacturing in Sp.	ace	MISSION MODE: A - Shuttle Sortie				
ENPE	RIMENT AREA: Sortie Lab F	Payload MS-	1		EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FUNCTION: 05 - Experiment Shutdown				
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	D. TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE		
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	ΝО.	NO.	TITLE .	NOTE NO.		
14	Flush out apparatus	18	01	4.D.05	2.D.25 1.G.03-2	Cleaning/Decontamination Equipment Unstower	1537	003.281	Instrumentation Technician			
		22	01	4.D.06	1.G.01-2 1.G.01-6 1.G.01-18	Cleaning/Decontamination Equipment Translocator	1538	000.000	General Technical Skill			
		27	01	4.D.06	2.D.37-2 2.D.39 2.D.40	Cleaning/Decontamination Equipment Installer	1536	003.181	Electrical Technician			
		19 19 19	01 01 01	2.D.37-2 2.D.39 2.D.40	4.D.06 4.D.06 4.D.06	Electrophoretic Column Cleaner Buffer/Waste Separator Cleaner Gas Elimination/Cooling System Cleaner	1577 1543 1527	000.000 000.000 000.000	General Technical Skill General Technical Skill General Technical Skill			
15	Secure apparatus	26 22	01 01	2.C.04-6 2.C.04-6	2.D.37-2 1.G.01-18 1.G.01-2 1.G.01-6	Buffer Solution Remover Buffer Solution Translocator	1554 1553	003.281 000.000	Instrumentation Technician General Technical Skill			
		17 26	01 01	2.C.04-6 2.C.04-7	2.D.39 2.D.05-2 2.D.35 2.B.06-22 (2.D.36) (2.B.06-3)	Buffer Solution Stower Biological Materials Remover	2244 1559	000.000 003.181	General Technical Skill Electrical Technician	MS-1		
		22	01	2.C.04-7	2.D.37-2 1.G.01-18 1.G.01-2 1.G.01-6 2.D.05-2	Biological Material Translocator	1558	000.000	General Technical Skill			
		17	01	2.C.04-7	3.I.07-1 2.D.35 (2.D.36)	Biological Material Stower	2245	003.281	Instrumentation Technician	MS-1		
		17	10	2.D.36	2.B.06-3 4.D.02	Biological Enclosure Stower	1562	003.281	Instrumentation Technician	ŀ		
		17	01	2.8.05-2	4.D.02	Instrumentation and Control Center Stower	2246	003.281	Instrumentation Technician			
		17	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Stower	1170	003.281	Instrumentation Technician			
	,	26	01	2.A.39-1	2.D.37-2 1.G.01-7	Interferometer Remover	1604	003.181	Electrical Technician			
REV	ISION NO:	REVIS	ION DAT	re:		REPARED BY: GRH/EMW APPI	ROVED	BY: GR	H SERIES MS-1-A PAG	GE ÅS-1.1-05		

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1	Materials Science and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	5-1		EXPERIMENT:	1.0 Biological Experiments1.1 Separation of Biologicals		BASIC FL	INCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝО.	TITLE	NO.
15	(Continued)	22	01	2.A.29-1	1.G.01-2 1.G.01-6 1.G.01-18	Interferometer Translocator	1603	000.000	General Technical Skill	
'		17	10	2.A.39-1	4.0.20 4.D.02	Interferometer Stower	1607	003.281	Instrumentation Technician	
}	•	26	01	2.D.37-2	2.D.39 1.G.01-7	Electrophoretic Column Remover	1576	003.181	Electrical Technician	
	·	22	10	2.0.37-2	1.G.01-2 1.G.01-6 1.G.01-18	Electrophoretic Column Translocator	1575	000.000	General Technical Skill	
		17	01	2.D.37-2	4.D.20 4.D.02	Electrophoretic Column Stower	1578	003.281	Instrumentation Technician	
	,	26	01	2.D.39	2.D.37-2 1.G.01-7	Buffer/Waste Separator Remover	1621	003.181	Electrical Technician	
		22	01	2.D.39	1.G.01-2 1.G.01-6 1.G.01-18	Buffer/Waste Separator Translocator	1542	000.000	General Technical Skill	
		17	01	2.D.39	4.D.20	Buffer/Waste Separator Stower	1544	003.281	Instrumentation Technician	
		26	01	2.0.40	1.G.01-7 2.U.37-2 4.D.22-1 (2.D.36) 2.B.06-21 4.D.13 1.G.03-5 1.G.03-6	Gas Elimination/Cooling System Remove	1622	003.181	Electrical Technician	MS-1
		22	01	2.D.40	1.G.01-2 1.G.01-6 1.G.01-18	Gas Elimination/Cooling System Translocator	1526	000.000	General Technical Skill	
		17	01	2.D.40	4.D.20 4.D.02 2.D.37-2 4.D.22-1 (2.D.36) 2.B.06-21 4.D.13 1.G.03-5 1.G.03-6	Gas Elimination/Cooling System Stower	1528	003.281	Instrumentation Technician	MS-1
REV	ISION NO:	REVIS	SION DA	<u>"</u> TE:		PREPARED BY: GRH/EMW APP	ROVED	BY: GR	H SERIES MS-1-A F	AGEMS-1.1-05-3

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFAC	TURING	F	PE: MS-1 Mat	erials Science and Manufacturing in	n Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS-	-1	E	EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	NCTION: 05 - Experiment Shutdo	wn
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	νο.	TITLE	NOTE NO.
15	(Continued)	26	01	2.A.04-3	1.G.01-7 2.D.37-2 2.D.36 2.B.09	TV Camera Remover	0661	003.181	Electrical Technician	
		22	01	2.A.04-3	1.G.01-2 1.G.01-6 1.G.01-18	TV Camera Translocator	0026	000.000	General Technical Skill	
		17	01	2.A.04-3	4.D.20 4.D.02	TV Camera Stower	0064	000.000	General Technical Skill	1
	. '	26	01	2.A.40-2	1.G.01-7 2.D.37-2 2.D.36 2.B.06-8	Densitometer Remover	1458	003.181	Electrical Technician	
		22	01	2.A.40-2	1.G.01-2 1.G.01-6 1.G.01-18	Densitometer Translocator	1456	000.000	General Technical Skill	
١.		26	01	2.A.40-2	1.G.01-7 2.D.37-2 2.D.36 2.B.06-8	Densitometer Remover	1458	003.181	Electrical Technician	
16	Dispose of toxic cleaning materials	22	01	4.D.06	1.G.01-2 1.G.01-6 1.G.01-18	Cleaning/Decontamination Equipment Translocator	1538	000.000	General Technical Skill	
		17	01	4.D.06	1.G.03-5	Cleaning/Decontamination Equipment Stower	t 1539	003.281	Instrumentation Technician	
17	Preserve samples by freeze drying	22	01	2.C.04-7	1.G.01-2 1.G.01-6 1.G.01-18	Biological Materials Translocator	1558	000.000	General Technical Skill	MS-2
		27	01	2.C.04-7	2.D.43 2.D.36 3.J.01	Biological Materials Installer	1556	003.181	Electrical Technician	
		15	01	2.B.06-23	2.D.43 3.J.01	Lyophilization Apparatus Control Actuator	1589	003.281	Instrumentation Technician	
29	Conduct voice conferences with ground personnel	05	01	4.A.O2	3.I.07-1 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6	Radio Communicator	0206	003.187	Radio Engineer	
REV	ISION NO:	REVIS	ION DAT	re:	7 4 4 4 4	REPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A	PAGE MS-1.1-05-

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFAC	TURING		FPE: MS-1 Mate	erials Science and Manufacturing in S	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-1			EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	UNCTION: 05 - Experiment Shutdo	nwo
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
×0.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
29	(Continued)	05		3.1.07-1	4.A.02 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Electrophoretic Separation Research Coordinator	2239	041.081	Biochemist .	
44	Develop film; make prints	06 06	01 01	4.B.08 4.D.19	2.A.27 2.A.27	Film Processor Film Processor	0328 0328	976.782 976.782	Film Developer Film Developer	MS-3
REV	ISION NO:	REVIS	GION DAT	re:	1	PREPARED BY: GRH/EMW A	APPROVED	BY: G	RH SERIES MS-1-A	PAGE MS-1.1-05-

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	PE: MS-1 Mate	erials Sciences and Manufacturing in Spa	ice	MISSION N	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-1	Ε	EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
4	Initiate bias voltage to column	15	01	4.0.13	2.B.06-9 2.D.37-2 2.B.06-1	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
6	Make up buffer solution from stock solutions	10	01	2.C.04-6	3.I.07-1 2.C.04-7 2.D.21-4	Buffer Solution Mixing Controller	1555	041.081	Biochemist	
7	Fill apparatus with buffer	27	01	2.C.O4-6	2.D.37-2 2.D.28	Buffer Solution Installer	1551	003.281	Instrumentation Technician	
10	Verify buffer flow rate	02 13	01	2.B.06-20 2.B.06-20	2.D.37-2 2.C.04-6 2.D.39 2.D.27-2 2.C.04-6 2.D.39 3.1.07-1	Buffer Solution Flow Rate Observer Buffer Solution Flow Rate Determiner	2247	041.081 041.081	Biochemist	
11	Initiate sample injection	15	01	2.8.06~19	2.D.37-2 2.C.04-7	Electrophoretic Column Control Actuator ·	2248	003.281	Instrumentation Technician	
13	Periodically monitor continuous column run	01	01	2.8.06~19	2.D.37-2 2.C.04-6 2.C.04-7 2.D.39 3.I.07-1	Electrophoretic Column Operation Monitor	1579	000.000	General Technical Skill	
18	Operate Schlieren optical scanner	15	01	2.B.06-8	2.A.29-2 2.D.37-2 2.C.04-6 2.C.04-7 3.I.07-1	Interferometer Control Actuator	1616	003.281	Instrumentation Technician	and the state of t
REV	ISION NO:	REVIS	SION DAT	<u>I</u> ГЕ:		PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES ES-1-A PAG	GEMS-1.1-06

DISCI	PLINE: MATERIALS SCIENCES AT	ID MANUFA	CTURING	F	PE: MS-1 Mate	erials Sciences and Manufacturing in Spa	ce	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	/load MS-	1	F	EXPERIMENT:	1.0 Biological Experiments1.1 Separation of Biologicals		BASIC FU	UNCTION: 06 - Experiment Cond	uct
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
19	Operate U.V. inicrodensitometer	15	01	2.8.06-8	2.A.40-2 2.D.37-2 2.C.04-6 2.C.04-7 3.I.07-1	Densitometer Control Actuator	1617	003.281	Instrumentation Technician	·
20	Evaluate Schlieren or microdensitometer traces	11	01	3.1.07-1	2.A.39-2 2.A.40-2 2.C.04-7 2.B.06-19 2.B.06-8	Electrophoretic Separation Process Process Evaluator	1587	041.081	Biochemist	
21	Determine infrared absorption spectra of samples	02	01	2.C.04-7	2.A.03-9 2.D.27 3.I.07-1	Biological Materials Test Observer	1624	041.081	Biochemist	MS-1
		11	01	3.1.07-1	(2.D.36) 2.C.04-7 2.A.03-9	Electrophoretic Separation Research Evaluator	1625	041.081	Biochemist	
		13	01	2.C.04-7	2.D.27 2.A.03-9 2.D.27 3.I.07-1 (2.D.36)	Biological Materials Data Determiner	2249	041.081	Biochemist	MS-1
22	Titrate samples with biological reagents	10	01	2.D.27	2.C.04-8 2.C.04-7 3.I.07-1 (2.D.36)	Materials Analysis Equipment Controller	1049	041.081	Biochemist	MS-1
		02	01	2.C.04-7	2.C.04-8 3.I.07-1 (2.D.36)	Biological Materials Test Observer	1624	041.081	Biochemist	MS-1
		וו	01	3.1.07-1	2.D.27 2.C.04-7 2.C.04-8 2.D.27	Electrophoretic Separation Research Evaluator	1625	041.081	Biochemist	
		13 ·	01	2.C.04-7	2.D.37-2 2.D.27 2.D.27-3 2.C.04-8	Biological Materials Data Determiner	2249	041.081	Biochemist	
REV	ISION NO:	REVIS	SION DAT	re:	3.1.07-1	PREPARLD BY: GRH/EMW APP	ROVED	BY: GR	SERIES MS-1-A	PAGEMS-1.1-06-2

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPER	RIMENT AREA: Sortie Lab Payl	load MS-	1		EXPERIMENT	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	JNCTION: 96 - Experiment Conduc	t
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
23	Measure chemical reaction rates	10	01	2.C.04-7	2.C.04-9 2.D.27 3.I.07-1 (2.D.26)	Biological Materials Mixing Control	1er 1626	041.081	Biochemist	MS-1
	(02	01	2.0.04-7	2.C.04-9 2.D.27 3.I.07-1 (2.D.35)	Biological Materials Test Observer	1624	041.081	Biochemist .	MS-1
	•	13	01	2.C.04-7	2.C.04-9 2.D.27 3.I.07-1 2.D.37-2	Biological Materials Data Determine	r 2249	041.081	Biochemist .	
24	Measure product effectiveness on bacterial cultures	10	01	2.C.04-7	2.C.04-4 2.D.27 3.I.07-1	Biological Materials Mixing Control	1er 1626	041.081	Biochemist .	MS-1
		02	01	2.C.04-7	(2.D.36) 2.C.04-4 2.D.27 3.I.07-1 (2.D.36)	Biological Materials Test Observer	1624	041.081	Biochemist	MS-1
		13	01	2.C.04-7	2.C.04-4 2.D.27 3.I.07-1 2.D.37-2	Biological Materials Data Determine	r 2249	041.081	Biochemist	
26	Photograph experiment configuration	15	01	4.D.04-3	2.D.36 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.37-2 2.D.39 2.D.40 2.A.04-3 2.A.40-2 2.A.30-1	Camera Control Actuator	0245	003.281	Instrumentation Technician	
REVI	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: GRH/EMW A	PPROVED	BY:	GRH SERIES MS-1-A	PAGE MS-1.1-06-3

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUF	ACTURING	F	FPE: MS-1 Ma	aterials Sciences and Manufacturing	in Space	MISSION .	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	1	F	EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	ONCTION: 06 - Experiment Conduct	
-	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
28	Voice record lab notes,	05	10	3.1.07-1	4.D.10	Electrophoretic Separation Data Recorder	1588	000.000	General Technical Skill	
29	Conduct voice conferences	05	01	·4.A.02	3.1.07-1 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13	Radio Communicator	0206	003.187	Radio Engineer	
		05	01	3.I.07-1	2.D.05-2 4.A.02 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Electrophoretic Separation Resear Coordinator	ch 2239	041.081	Biochemist -	
36	Schedule experiment runs	13	01	3.1.07-1	2.B.06-2 2.B.06-1 2.C.04-7 6.A.02	Electrophoretic Separation Resear Planner	ch 1586	041.081	Biochemist	
39	Monitor experiment	01	01	2.B.06-3	2.D.36	Biological Enclosure Operation Mo	nitor 1563	003.281	Instrumentation Technician	
1	performance	01	01	2.8.06-7	3.I.07-1 2.D.15	Atmosphere Supply/Control System	1129	003.281	Instrumentation Technician	
	•	01	01	2.B.06-9	3.I.07-1 4.D.13	Operation Monitor Power Conditioning/Distribution	1136	003.281	Instrumentation Technician	
		01	01	2.8.06-19	3.I.07-1 2.D.37-2 3.I.07-1 2.C.04-6	System Operation Monitor Electrophoretic Column Operation Monitor	1579	003.281	Instrumentation Technician	
		01	01	2.8.06-20	2.C.04-7 2.D.39 3.I.07-1 2.C.04-6	Buffer/Waste Separator Operation Monitor	1545	003.281	Instrumentation Technician	
		01	01	2.8.06-21	2.D.40 3.I.07-1	Gas Elimination/Cooling System Operation Monitor	1529	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	SION DAT	re:	1	PREPARED BY: GRH/EMW	APPROVED	BY: GR	H SERIES MS-1-A P	AGENS-1.1-06-4

FUNCT. ENVIR.	DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	ACTURING	F	PE: MS-1 M	aterials Sciences and Manufacturing	in Space	MISSION	MODE: A - Shuttle Sortie	
NO. DESCRIPTION NO. NO	EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	1	E	XPERIMENT:	• ,		BASIC FU	OG - Experiment Conduc	:t
NO. DESCRIPTION NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. TITLE NO. NO. NO. NO. NO. TITLE NO. NO. NO. NO. NO. TITLE NO. NO. NO. NO. NO. TITLE NO.		CREW TASK STATEMENT			TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
O1	NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
10	39	(Continued)	1			3.I.07-1 2.A.39-1	·				
recording, and transmission systems and equipment 10 01 1.G.02-12 2.B.06-2 2.B.06-2 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.02-12 1.G.04-7 1.G	40	Evaluate experiment results	11	01	3.1.07-1	2.C.04-7 2.C.04-6 2.C.04-9 2.C.04-4		ch 1625	041.085	Biochemist	
	47	recording, and transmission	10 10 05 10	01 01 01 01	1.G.02-12 2.D.27 4.A.02 2.B.06-8	2.D.37-2 2.B.06-2 4.A.01 2.B.06-2 2.C.04-7 3.I.07-1 6.A.02 2.A.40-2 2.D.37-2 3.I.07-1 2.C.04-7 2.A.29-1 2.D.37-2	Telemetry Equipment Controller, Materials Analysis Equipment Controller Radio Communicator Densitometer Controller	1104 1049 0206 1620	003.181 041.081 003.187 003.181	Electrical Technician Biochemist Radio Engineer Electrical Technician	
REVISION NO: REVISION DATE: PREPARED BY: GRH/EMW APPROVED BY: GRH SERIES MS-1-A PAGEMS-1.1				<u></u>	<u></u>	<u> </u>	<u> </u>		<u> </u>		AGEMS-1.1-06

DISCI	PLINE: MATERIALS SCIENCES AND) MANUFA(TURING	I	FPE: MS-1 Ma	terials Sciences and Manfuacturing in Sp	ace	MISSION	MODE: A - Shut	tle Sortie	
ENPE	RIMENT AREA: Sortie Lab Payl	oad MS-1		F	EXPERIMENT:	1.0 Biological Experiments 1.1 Separation of Biologicals		BASIC FU	JNCTION: 10 -	Unscheduled Mai (See note MS	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUP	PATIONAL SKILL	REFERENC
ΝО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.		TITLE	NOTE NO.
48	Repair experiment equipment	07	01	2.B.06-3	2.D.36 4.D.18 4.C.02	Biological Enclosure Fault Identifier	1568	828.281	Electronics M	echanic	
		28 07	01 01	2.D.36 2.B.06-2	4.D.18 4.D.18 4.C.02	Biological Enclosure Repairer Instrumentation and Control Center Fault Identifier	1569 2250	828.281 828.281	Electronics M Electronics M	echanic .	
		28 07	01 01	2.8.06-2 2.8.06-9	4.D.18 4.D.13	Instrumentation and Control Center Repairer Power Conditioning/Distribution	2251	828.281 828.281	Electronics M Electronics M		
		28 07	01	4.D.13	4.D.18 4.C.02 4.D.18	System Fault Identifier Power Conditioning/Distribution System Repairer	1139	828.281	Electronics M	-	
		28	01 01 01	2.B.06-19 2.D.37-2 2.B.06-20	2.D.37-2 4.D.18 4.C.02 4.D.18 2.D.39	Electrophoretic Column Fault Identifier Electrophoretic Column Repairer Buffer/Waste Separator Fault	1584 1585 1548	828.281 828.281 828.281	Electronics M Electronics M Electronics M	iechanic	
		28 07	01 01	2.D.39 2.8.06-21	4.D.18 4.C.02 4.D.18 2.D.40	Identifier Buffer/Waste Separator Repairer Gas Elimination/Cooling System	1572 1534	828.281 828.281	Electronics M Electronics M	echanic	
	;	28	01	2.D.40	4.D.18 4.C.02 4.D.18	Gas Elimination/Cooling System Repairer	1535	828.281	Electronics M	Mechanic	
		07	01	2.B.09	2.A.04-3 4.D.18 4.C.02	TV Camera Fault Identifier	0689	828.281	Electronics M	lechani c	
		28 07	01	2.A.04-3 2.B.06-8	4.D.18 2.A.40-2 4.D.18 4.C.02	TV Camera Repairer Densitometer Fault Identifier	0690 1465	828.281 828.281	Electronics M Electronics M	Mechanic Mechanic	
	:	28 07	01 01	2.A.40-2 2.B.06-8	4.D.18 2.A.39-1 4.D.18 4.C.02	Densitometer Repairer Interferometer Fault Identifier	1466 1614	828.281 828.281	Electronics M Electronics M		
	:	28	01	2.A.39-1	4.0.18	Interferometer Repairer	1615	828.281	Electronics M	Mechanic	
REV	ISION NO:	REVIS	ION DAT	CE:	<u> </u>	PREPARED BY: GRH/EMW APP	ROVED	BY:	GRH S	SERIES MS-1-A	PAGE MS-1.1-10-

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-2

EXPERIMENT: 2.0 LEVITATION EXPERIMENTS

2.1 PREPARATION OF GLASSES

oisci	PLINE: MATERIALS SCIENCES A	ND MANUFA	CTURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS-	2.		EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setup)
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
1	Set up apparatus in prescribed configuration	18 22	01 01	2.C.26 2.C.26	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Glass Samples Unstower Glass Samples Translocator	1513 1514	003.281 000.000	Instrumentation Technician General Technical Skill	
		27	01	2.C.26	2.D.24-1	Glass Samples Installer	1515	003.181	Electrical Technician	
i		18	01	2.D.13-1	3.I.06-1 4.D.02	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
		18	01	2.D.13-2	2.B.06-6 4.D.02	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
		18	01	2.8.06-1	2.B.06-6 4.D.02	Computer Unstower	1054	003.281	Instrumentation Technician	
		18	01	2.8.06-2	2.B.05-2 4.D.02	Instrumentation and Control Center	2240	003.281	Instrumentation Technician	
		18	01	2.D.15	4.D.02	Unstower Atmosphere Supply and Control	1162	003.281	Instrumentation Technician	
		18	01	4.D.13	2.B.05-7 4.D.02	System Unstower Power Conditioning/Distribution	1163	003.281	Instrumentation Technician	
		18	01	2.D.24-1	2.B.C6-9 4.D.G2	System Unstower Furnace Unstower	0980	003.281	Instrumentation Technician	
		18	01	2.D.34	2.B.06-10 4.D.02	Atmosphere Analysis Unit Unstower	1203	003.281	Instrumentation Technician	
		22	01	2.0.34	4.D.20 1.G.01-18	Atmosphere Analysis Unit Translocator		000.000	General Technical Skill	
		27	01	2.D.34	1.G.01-2 1.G.01-6 2.D.13-1 2.D.13-2 2.D.15	Atmosphere Analysis Unit Installer	1205	003.181	Electrical Technician	
		18	01	2.A.43	2.8.06-27 3.1.05-1 4.D.02 4.D.20	Holographic Device Unstower	1240	003.281	Instrumentation Technician	
		22	01	2.A.43	1.G.01-18 1.G.01-2 1.G.01-6	Holographic Device Translocator	1239	000.000	General Technical Skill	
	1									
REV	ISION NO:	REVIS	SION DAT	TE:		PREPARED BY: GRH/EMW APP	ROVED	BY: G	RH SERIES MS-1-A	PAGE MS-2.1-0

oisci	PLINE: MATERIALS SCIENCES	AND MANUFA	CTURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION I	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab	Payload MS	5-2		EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL		 	PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
1	(Continued)	27	01	2.A.43	2.B.06-14 2.C.26	Holographic Device Installer	1238	003.181	Electrical Technician	
	'	18	01	2.D.52	3.I.06-1 4.D.02	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician	
		22	01	2.D.52	4.D.20 1.G.01-18 1.G.01-2	VHF Power Unit Translocator	1093	000.000	General Technical Skill	
,	1	27	01	2.D.52	1.G.01-6 2.B.06-17 4.D.13	YHF Power Unit Installer	1091	003.181	Electrical Technician	
	•	18	01	4.D.14	3.I.06-1 1.G.02-14 4.D.02	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician	
		18 18	01 01	4.D.22-1 2.D.45	4.D.02 4.D.02	General Purpose Lab Bench Unstower Silicate Melt Susceptor Unstower	2252 1373	003.281 003.281	Instrumentation Technician . Instrumentation Technician	
	•	22	01	2.D.45	4.D.20 1.G.01-18 1.G.01-2	Silicate Melt Susceptor Translocator	1374	000.000	General Technical Skill	
		27	01	2.0.45	1.G.01-6 2.D.13-2 4.D.13 2.B.06-25	Silicate Melt Susceptor Installer	1375	003.181	Electrical Technician	
		18	10	2.A.04-3	3.I.06-1 4.D.02 4.D.20	TV Camera Unstower	0054	003.281	Instrumentation Technician	
		22	01	2.A.04-3	1.G.01-18 1.G.01-2	TV Camera Translocator	0026	000.000	General Technical Skill	
		27	01	2.A.04-3	1.G.01-6 1.G.01-7 2.B.09 2.D.13-1 2.D.13-2	TV Camera Installer	0306	003.181	Electrical Technician	
		18	01	4.8.01-1	2.D.24-1 4.D.02 1.G.02-13	Accident Control System Unstower	2253	003.281	Instrumentation Technician	
				<u> </u>			<u> </u>			
REV	ISION NO:	REVIS	SION DA	re:	1:	PREPARED BY: GRH/EMW APP	ROVED	BY: GR	H SERIES MS-1-A P.	AGE MS-2.1-04

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab	Payload	MS-2		EXPERIMENT:	2.0 Levitation Experiments2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEF	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREY
NO.	DESCRIPTION	FUNCT. NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
1	(Continued)	18	01	2.D.32	4.0.02	Heating/Positioning Coil Unstower	1271	003.281	Instrumentation Technician	
		22	01	2.D.32	4.D.20 1.G.01-18 1.G.01-2	Heating/Positioning Coil Translocato	r 1270	000.000	General Technical Skill	
		27	01	2.D.32	1.G.01-6 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-11	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician	
	,	18	01	2.A.44	3.I.06-1 4.D.02	Viewing Device Unstower	1215	003.281	Instrumentation Technician	
		22	01	2.A.44	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Viewing Device Translocator	1216	000.000	General Technical Skill	
		27	01	2.A.44	2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.B.06-28 3.I.06-1	Viewing Device Installer	1217	003.181	Electrical Technician	AND AND AND AND AND AND AND AND AND AND
2 .	Place samples in processing equipment	27	01	2.0.26	2.D.13-1 2.D.13-2 2.D.24-1 2.D.32 3.I.06-1	Glass Sample Installer	1515	003.181	Electrical Technician	
10	Conduct voice conferences with ground experiment personnel	05	01	4.A.O2	3. I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.D.45 2.A.43 2.D.32	Radio Communicator	0206.	003.187	Radio Engineer	
REV	ISION NO:	REVIS	SION DA	TE:	1	PREPARED BY: GRH/EMW AP	PROVED	BY: 0	GRH SERIES MS-1-A	PAGEMS-2.1-04

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	1	FPE: MS-1 Ma	terials Sciences and Manufacturing in Sp	ace	VIISSION V	NODE: A - Shuttle Sortie	
EXPER	RIMENT AREA: Sortie Lab Pay	load MS-	2	1	EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setup	
. (CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
10	(Continued)	05	01	3.1.06-1	4.A.02 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.D.45 2.A.43 2.D.32	Glass Processing Research Coordinator	2254	022.081	Chemist, Inorganic - Glass	
32	Reconfigure experiments	26 27 26 27 26 27 15 15 15 26 27	01 01 01 01 01 01 01 01	2.C.26 2.C.26 2.D.13-1 2.D.13-2 2.D.13-2 2.D.13-2 2.B.06-1 2.B.06-7 2.D.15 2.D.15 2.D.15 2.B.06-6	2.D.24-1 2.D.24-1 4.D.18 4.D.18 3.I.06-1 4.D.18 3.I.06-1 2.C.26 3.I.06-1 2.C.26 3.I.05-1 2.C.26 3.I.05-1 2.C.26 4.D.18 3.I.06-1 2.C.26 4.D.18 3.I.06-1 2.C.26 4.D.18 3.I.06-1 2.C.26 4.D.18 3.I.06-1 2.C.26 4.D.18 3.I.06-1 2.C.26 4.D.18 3.I.06-1 2.C.26	Glass Sample Remover Glass Sample Installer Environmental Chamber Module Remover Environmental Chamber Module Installer Environmental Chamber Module Remover Environmental Chamber Module Installer Computer Control Actuator Instrumentation and Control Center Control Actuator Atmosphere Supply and Control System Control Actuator Atmosphere Supply and Control System Module Remover Atmosphere Supply and Control System Module Remover Environmental Chamber Control Actuator Power Conditioning/Distribution System Control Actuator	1059 1060 0847 2255 1174 1127 1128 1173		Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Electrical Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Electrical Technician Electrical Technician Instrumentation Technician	
		26	01	4.D.13	3.I.06-1 2.C.26 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician	
REVI	ISION NO:	REVIS	ION DAT	re:	1	PREPARED BY: GRH/EMW APPI	ROVED	BY: GRH	SERIES MS-1-A PA	GE4S-2.1-04-4

XPE	RIMENT AREA: Sortie Lab	Payload MS	5-2	E	XPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setu	p
(CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
νо.	DESCRIPTION	FUNCT.	ENVIR.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE .	NOTE NO.
32	(Continued)	27	01	4.D.13	3.I.06-1 2.C.26	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician	
İ	;	15	01	2.B.06-10	4.D.18 2.D.24-1 3.I.06-1	Furnace Control Actuator	1175	003.281	Instrumentation Technician	
	· (A	26	01	2.D.24-1	2.C.26 3.I.06-1 2.C.26	Furnace Module Remover	0981	003.181	Electrical Technician	
	·	27	01	2.D.24-1	4.D.18 3.I.06-1 2.C.26	Furnace Module Installer	0982	003.181	Electrical Technician	
		15	01	2.B.06-27	4.D.18 2.D.34 3.I.06-1	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician	
!		26	01	2.D.34	2.C.26 3.I.06-1 2.C.26	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician	
		27	01	2.D.34	4.D.18 3.I.06-1 2.C.26	Atmosphere Analysis Unit Module Installer	1209	003.181	Electrical Technician	-
		26	01	2.A.43	4.D.18 3.I.06-1 2.C.26	Holographic Device Remover	1237	003.181	Electrical Technician	
		27	01	2.A.43	4.D.18 3.I.06-1 2.C.26	Holographic Device Installer	1238	003.181	Electrical Technician	
		26	01	2.A.43	4.D.18 3.I.06-1 2.C.26	Holographic Device Module Remover	1235	003.181	Electrical Technician	
		27	10	2.A.43	4.D.18 3.I.06-I 2.C.26	Holographic Device Module Install	er 1234	003.181	Electrical Technician	
	;	15	01	2.B.05-17	4.D.18 2.D.52 3.I.06-1 2.C.25 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician	
12 123 2	ISION NO:	DEVIC	SION DA	Tr.	!	PREPARED BY: GRH/EMW	APPROVED	BY: GRH	SERIES MS-1-A	PAGE4S-2.1-04

DISC	PLINE: MATERIALS SCIENCES AF	ND MANUFA	CTURI.IG	F	PE: MS-1 Mai	erials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	ayload MS	5-2	E	XPERIMENT:	2.0 Levitation Experiments2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setu	dr
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
ĸО.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝО.	TITLE	NOTE NO.
32	(Continued)	26	01	2.D.52	3.I.06-1 2.C.26 2.B.06-17	VHF Power Unit Remover	1094	003.181	Electrical Technician	
		27	01	2.D.52	4.D.13 3.I.06-1 2.C.26 2.B.06-17	VHF Power Unit Installer	1091	003.181	Electrical Technician	
		26	01	2.0.52	4.D.13 3.I.06-1 2.C.26 2.B.06-17 4.D.13	VHF Power Unit Module Remover	1095	003.181	Electrical Technician	
		27	01	2.0.52	4.D.18 3.I.06-1 2.C.26 2.B.06-17 4.D.13	VHF Power Unit Module Installer	1096	003.181	Electrical Technician	
		15	01	1.G.02-14	4.D.18 4.D.14 3.I.06-1 2.C.26 2.D.13-1 2.D.13-2	Heat Rejection System Control; Actuator	1184	003.281	Instrumentation Technician	
		15	01	2.8.06-25	2.D.24-1 2.D.45 3.I.06-1 2.C.26	Silicate Melt Susceptor Control Actuator	1372	003.181	Instrumentation Technician	
		26	01	2.D.45	3.I.06-1 2.C.26 2.D.13-2 4.D.13	Silicate Melt Susceptor Remover	1376.	003.281	Electrical Technician	
		27	01	2.D.45	2.B.06-25 3.I.06-1 2.C.26 2.D.13-2 4.D.13 2.B.06-25	Silicate Melt Susceptor Installer	1375	003.281	Electrical Technician	
/ 										
REV	ISION NO:	REVIS	ION DA	TE:	P	REPARED BY: GRH/EMW A	PPROVED	BY: GR	H SERIES MS-1-A	PAGE MS-2.1-

DISC	IPLINE: MATERIALS SÇIENCES AN	ID MANUFA	ACTURING	1	FPE: MS-1 Ma	aterials Sciences and Manufacturing in	Space	MISSION A	MODE: A - Shuttle Sortie	
EXP	ERIMENT AREA: Sortie Lab F	ayload N	15-2		EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setu	pp
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
32	(Continued)	26	01	2.0.45	3.I.06-1 2.C.26 2.D.13-2 4.D.13 2.B.06-25	Silicate Melt Susceptor Module Remover	1377	003.281	Electrical Technician	
		27	01	2.D.45	4.D.18 3.I.06-1 2.C.26 2.D.13-2 4.D.13 2.B.06-25 4.D.18	Silicate Melt Susceptor Module Installer	1378	003.281	Electrical Technician	
REV	VISION NO:	REVIS	SION DA	TE:		PREPARED BY: GRH/EMW A	PPROVED	BY: GR	H SERIES MS-1-A	PAGE MS-2.1-04-7

DISC	PLINE: MATERIALS SCIENCES A	ND MANUFAC	TURING	I	PE: MS-1 Mat	erials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	<u> </u>
EXPE	RIMENT AREA: Sortie Lab P	ayload MS-	-2	I	EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	JNCTION: 04 - Experiment Setup)
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPI	ENDENCY NO.	TASK - SKILL	· · · · · · · · · · · · · · · · · · ·		PRIMARY OCCUPATIONAL SKILL	REFEREN
ΝО.	DESCRIPTIÓN	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	ΝО.	NO.	TITLE	NOTE NO.
32	(Continued)	26	01	2.A.04 - 3	1.G.01-7 2.B.09 2.D.13-1	TV Camera Remover	0661	003.281	Electrical Technician	
		27	01	2.A.04-3	2.D.13-2 2.D.24-1 1.G.01-7 2.B.09 2.D.13-1 2.D.13-2	TV Camera Installer	0306	003.281	Electrical Technician	
		15	01	2.8.06-11	3.I.06-1 2.C.26 2.D.52	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician	
		26	01	2.D.32	2.D.13-1 2.D.13-2 4.D.22-1 3.I.06-1 2.C.26 2.D.52 2.D.13-1	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician	
	·	27	01	2.D.32	2.D.13-2 4.D.22-1 2.B.06-11 3.I.06-1 2.C.26 2.D.52 2.D.13-1	Heating/Postioning Coil Installer	1269	003.181	Electrical Technician	
		15	01	2.8.06-28	2.D.13-2 4.D.22-1 2.B.06-11 2.A.44 3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician	
REV	ISION NO:	REVI	SION DA	TF:		PREPARED BY: GRH/EMN	APPROVED	RY:	GRH SERIES MS-1-A	PAGE MS-2

DISCI	PLINE: MATERIALS SCIENCES	AND MANUF	ACTURING		FPE: MS-1 Mat	terials Sciences and Manufacturing i	n Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab I	Payload MS	3-2		EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	ΝО.	NO.	TITLE	NOTE NO.
32	(Continued)	26	01	2.A.44	3. I.06-1 2. C.26 2. D.13-1 2. D.13-2 2. D.24-1	Viewing Device Remover	1218	003.181	Electrical Technician	
		27	01	2.A.44	2.8.06-28 3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.B.06-28	Viewing Device Installer	1217	003.181	Electrical Technician	
35	Calibrate instruments	08 08	01 01	2.D.27 2.D.52	4.C.01	Materials Analysis Equipment Calibrator VHF Power Unit Calibrator	1046	710.884	Calibrator Calibrator	
		08 08	01 01	2.D.32 2.A.43	4.C.01 4.C.01	Heating/Positioning Coil Calibrato Holographic Device Calibrator	or 1333 1227	710.884 710.884	Calibrator Calibrator	
37	Define apparatus configuration	וו	01	3. I.06-1	2.C.26 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.45 2.A.17-7 2.A.04-3 2.A.43 2.D.52 2.B.06-1 4.D.14 4.E.04-1 2.D.27 4.D.10 2.D.32 2.D.32 2.A.44	Glass Processing Research Evaluato	or 1522	022.081	Chemist, Inorganic - Glass	
REV	ISION NO:	REVIS	SION DAT	E:		PREPARED BY: GRH/EMW	APPROVED	BY: GR	H SERIES MS-1-A	PAGEMS-2.1-04-9

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Mat	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shut	ttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Payl	oad MS-2	!		EXPERIMENT	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 04 -	- Experiment Setu	1Þ	_
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEI	ENDENCY NO	TASK - SKILL		Ì	PRIMARY OCCUPA	ATIONAL SKILL		REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	Y TITLE	NO.	NO.	T	ritle		NOTE NO.
38	Define experiment conditions	13		3. I.06-1	2.C.26 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.45 2.A.17-7 2.A.04-3 2.A.43 2.D.52 2.B.06-1 4.D.14 4.E.04-1 2.D.27 4.D.10 2.D.34 2.D.32 2.A.44	Glass Processing Research Planner	1521	022.081	Chemist, Inorg	ganic - Glass		
	Install data recording system Checkout optical instrumentation and measuring devices	18 22 27 03 03 03 14 14 14	01 01 01 01 01 01 01 01	4.D.10 4.D.10 4.D.10 2.D.27 2.A.04-3 2.A.43 2.D.27 2.A.04-3 2.A.43	4.D.09 4.C.02	Data Recorder Installer Materials Analysis Equipment Inspector TV Camera Inspector Holographic Device Inspector Materials Analysis Equipment Teste TV Camera Tester	1520 1156 etor 2269 0079 2270	722.281 722.281 722.281 722.281 003.181	Instrumentation General Technology Electrical Technology Inspector, System of the System of the System of the System of the System of the State of t	chnician stems stems stems chnician chnician		
REV	ISION NO:	REVIS	ION DAT	re:		PREPARED BY: GRH/EMW A	PPROVED	BY: G	RH SI	ERIES MS-1-A	PAGEM	IS-2.1-04-1

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in Sp	oace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	-2		EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION.	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
3	Refurbish experiment apparatus	19 19 19 19	01 01 01 01 01	2.D.13-1 2.D.13-2 2.D.24-1 2.D.32 2.D.27	2.C.26 4.D.06 2.C.26 4.D.06 2.C.26 4.D.06 2.C.26 4.D.06 2.C.26	Environmental Chamber Cleaner Environmental Chamber Cleaner Furnace Cleaner Heating/Positioning Coil Cleaner Materials Analysis Equipment Cleaner	1062 1062 0984 1336 1048	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
4	Secure experiment apparatus	26 22 17 17	01 01 01 01	2.C.26 2.C.26 2.C.26 2.D.13-1	4.D.06 2.D.24-1 1.G.01-18 1.G.01-6 1.G.01-2 4.D.20 2.B.06-6 4.D.02	Glass Sample Remover Glass Sample Translocator Glass Sample Stower Environmental Chamber Stower	1516 1514 1517 1061	003.181 000.000 003.281 003.281	Electrical Technician General Technical Skill Instrumentation Technician Instrumentation Technician	
		17 17 17	01 01 01	2.0.13-2 2.8.06-1 2.8.06-2	2.B.05-6 4.D.02 4.B.06-2 4.D.02 4.D.02	Environmental Chamber Stower Computer Stower Instrumentation and Control Center Stower	1061 1160 2246	003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician	
		17 17 17 26 22	01 01 01 01 01	2.D.15 4.D.13 2.D.24-1 2.D.34 2.D.34 2.D.24	2.B.06-7 4.D.02 2.B.06-9 4.D.02 2.B.06-10 4.D.02 2.B.06-27 2.D.13-1 2.D.13-2 2.D.15 1.G.01-18 1.G.01-6 1.G.01-2 4.D.02 4.D.20	Atmosphere Supply and Control System Stower Power Conditioning/Distribution System Stower Furnace Stower Atmosphere Analysis Unit Remover Atmosphere Analysis Unit Translocator Atmosphere Analysis Unit Stower		003.281 003.281 003.281 003.181 000.000 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Electrical Technician General Technical Skill Instrumentation Technician	
REV	ISION NO:	REVIS	ION DA	ΓE:		PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A PA	GEMS-2.1-05-1

ISC	IPLINE: MATERIALS SCIENCES AN	D MANUFAC	TURING	I	PE: MS-1 M	aterials Sciences and Manufacturing in	Space	MISSION I	MODE: A - Shuttle Sortie	
NPE	RIMENT AREA: Sortie Lab Pa	yload MS-	-2	I	EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 05 - Experiment Shutdown	
··i	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERE
NO.	DESCRIPTION	FUNCT. NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
4	(Continued)	26 22	01 01	2.A.43 2.A.43	2.8.06-14 1.G.01-18 1.G.01-6 1.G.01-2	Holographic Device Remover Holographic Device Translocator	1237 1239	003.181 000.000	Electrical Technician General Technical Skill	
	,	17	01	2.A.43	4.D.02	Holographic Device Stower	1236	003.281	Instrumentation Technician	
		26	01	2.D.52	4.D.20 2.B.06-17	VFH Power Unit Remover	1094	003.181	Electrical Technician	
		22	01	2.D.52	4.D.13 1.G.01-18 1.G.01-6	VFH Power Unit Translocator	1093	000.000	General Technical Skill	-
		17	01	2.D.52	1.G.01-2 4.D.02	VHF Power Unit Stower	1098	003.281	Instrumentation Technician	1
		17	01	4.D.14	4.D.20 1.G.02-14	Heat Rejection System Stower	1145	003.281	Instrumentation Technician	
		17 26	01 01	4.D.22-1 2.D.45	4.D.02 4.D.02 2.D.13-2 4.D.13	General Purpose Lab Bench Stower Silicate Melt Susceptor Remover	2256 1376	003.281 003.181	Instrumentation Technician Instrumentation Technician	
		22	01	2.D.45	2.8.06-25 1.G.01-18 1.G.01-6 1.G.01-2	Silicate Melt Susceptor Translocator	1374	000.000	General Technical Skill	
		17	01	2.D.45	4.D.02	Silicate Melt Susceptor Stower	2257	003.281	Instrumentation Technician -	
		26	01	2.A.04-3	4.D.20 1.G.01-7 2.B.09 2.D.13-1 2.D.13-2	TV Camera Remover	0661	003.281	Instrumentation Technician	
		22	01	2.A.04-3	2.D.24-1 1.G.01-18 1.G.01-6 1.G.01-2	TV Camera Translocator	0026	000.000	General Technical Skill	
		17.	01	2.A.04-3	4.D.02	TV Camera Stower	0064	003.281	Instrumentation Technician	j
		17	01	4.8.01-1	4.D.20 4.D.02	Accident Control System Stower	2258	003.281	Instrumentation Technician	1
		26	01	2.D.32	1.G.02-13 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-11	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician	
REV	ISION NO:	REVIS	SION DAT	(E:	1	PREPARED BY: GRH/EMW API	ROVED	BY: G	RH SERIES MS-1-A PAC	EMS-2.1-0

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	1	PE: MS-1 Ma	terials Sciences and Manufacturing in S	pace	MISSION	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	-2	F	EXPERIMENT:	2.0 Levitation Experiments2.1 Preparation of Glasses		BASIC FU	NCTION: 05 - Experiment Shutdo	wn
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
4	(Continued)	22	01	2.0.32	1.G.01-18 1.G.01-6 1.G.01-2	Heating/Positioning Coil Translocator	1270	000.000	General Technical Skill	
		17	01	2.0.32	4.0.02	Heating/Positioning Coil Stower	1267	003.281	Electrical Technician	
		26	01	2.A.44	4.D.20 2.D.13-1 2.D.13-2 2.D.24-1	Viewing Device Remover	1218	003.181	Electrical Technician	
		22	01	2.A.44	2.B.06-28 1.G.01-18 1.G.01-6 1.G.01-2	Viewing Device Translocator	1216	000.000	General Technical Skill	
44	Develop film; make prints	06 06	10 10	4.B.08 4.D.19	2.A.27-6 2.A.27-6	Film Processor Film Processor	0328 0328	976.782 976.782	Film Developer Film Developer	MS-3
REV	ISION NO:	REVI	SION DY.	re:	r	REPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A	PAGEMS-2.1-05-

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	PE: MS-1 Mate	rials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortié Lab Pay	load MS-	2	F	EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 06 - Experiment Conduct	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
5	Monitor experiment atmosphere control equipment	01	01	2.B.06-7 2.B.06-27	2.D.15 2.D.34 5.J.01 4.C.02 2.D.34 2.D.15 5.J.01 5.C.02	Atmosphere Supply/Control System Operation Monitor Atmosphere Analysis Unit Operation Monitor	1129	003.281	Instrumentation Technician Instrumentation Technician	
6	Perform optical tests for glass homogeneity	12	01 01	2.C.26 2.D.27	2.D.27 3.I.06-1 2.C.26 3.I.06-1	Glass Structure Analyzer Materials Analysis Equipment Controller	1518		Chemist, Inorganic - Glass Chemist, Inorganic - Glass	
	Perform optical tests for glass crystallinity	12 10	01	2.C.26 2.D.27	2.D.27 3.I.06-1 2.C.26 3.I.06-1	Glass Structure Analyzer Materials Analysis Equipment Controller	1518 1049	1	Chemist, Inorganic - Glass Chemist, Inorganic - Glass	
8	Prepare photographs of glass samples	27 15	01	4.D.04-3 4.D.04-3	2.D.27 3.I.06-1 2.C.26 2.D.27 3.I.06-1 2.C.26	Camera Installer Camera Control Actuator	0039		Electrical Technician Instrumentation Technician	
	Transmit photographs to ground personnel	27 10	01	4.B.10 4.A.01	4.D.04-6 4.A.01 4.D.04-6 4.B.10	Line Reader Installer Telemetry Equipment Controller	2259	003.181	Electrical Technician Electrical Technician	MS-3
10	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.D.45 2.A.43	Radio Communicator	0206	003.187	Radio Engineer	
REVI	ISION NO:	REVIS	ION DAT	TE:	2.D.32 P	REPARED BY: GRH/EMW A	PPROVED	BY: GR	H SERIES MS-1-A PAGE	MS-2.1-06-

DISC	PLINE: MATERIALS SCIENCES A	ND MANUFA	CTURING	F	PE: MS-1 Mate	erials Sciences and Manufacturing in Spa	се	MISSION N	IODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pag	yload MS-	2	I	EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 06 - Experiment Conduct	
-	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
11	Activate data transmission equipment as required	15	01	1.G.02-12	4.A.01 3.I.06-1 6.A.02 5.L.03	Telemetry Equipment Control Actuator	0662	003.281	Instrumentation Technician	
		15	01	4.A.02	3.I.06-1 6.A.02 5.L.03	Radio Communicator	0206	003.187	Radio Engineer	
	, . '	15	01	1.G.02-12	4.A.04 3.1.06-1 6.A.02	Data Compression Equipment Control Actuator	1550	003.281	Instrumentation Technician	
		15	01	2.B.09	5.L.03 2.A.04-3 3.I.06-1 2.C.26 6.A.02 5.L.03	TV System Control Actuator	1549	003.281	Instrumentation Technician	
13	Initiate experiment run	15	01	2.B.06-11	2.D.32 3.I.06-1	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician	
		15	01	2.8.06-6	2.C.26 2.D.13-1 2.D.13-2 3.I.06-1	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
		15	01	2.B.06-5	4.D.22-1 3.I.06-1	General Purpose Lab Bench Control Actuator	2260	003.281	Instrumentation Technician	
		15	01	2.B.06-7	2.D.15 3.I.06-1 2.C.26 2.D.34	Atmosphere Supply/Control System Control Actuator	1174	003.281	Instrumentation Technician	
		15	01	2.B.06-9	4.D.13 3.I.06-1 2.D.52	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
		15	01	2.8.06-10	2.D.24-1 3.I.06-1 2.C.26	Furnace Control Actuator	1175	003.281	Instrumentation Technician	
		15	01	2.B.06-25	2.0.45 2.1.06-1 2.C.26	Silicate Melt Susceptor Control Actuator	1372	003.281	Instrumentation Technician	
		15	01	2.A.17-7	3.I.06-1 2.C.26 2.A.44	Camera Control Actuator	0245	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	ION DA	# re:	·	PREPARED BY: GRH/EMW APP	ROVED	BY: G	RH SERIES MS-1-A PA	GE4S-2.1-06-

	PLINE: MATERIALS SCIENCES A RIMENT AREA: Sortie Lab P					aterials Sciences and Manufacturing in S 2.0 Levitation Experiments	Pucc	BASIC FU	NOTION: 06 - Experiment Conduct	
		u,	-			2.1 Preparation of Glasses			7,21,	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL	T]	PRIMARY OCCUPATIONAL SKILL	REFERENC
χO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
13	(Continued)	15	01	2.8.09	2.A.04-3 3.I.06-1 2.C.26	TV Camera Control Actuator	0899	003.281	Instrumentation Technician	
		15	01	2.8.06-14	2.A.44 2.A.43 3.I.06-1 2.C.26	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician	
		15	01	2.B.06-17	2.D.52 3.I.06-1 2.C.26	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician	
		15	01	2.8.06-2	4.D.13 2.B.06-1 3.I.06-1 2.C.26	Computer Control Actuator	0847	003.281	Instrumentation Technician	
		15	01	2.G.02-14		Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician	
	,	15	01	1.G.02-13		Accident Control System Control Actuator	2261	003.281	Instrumentation Technician	
		15	01	2.8.06-27	2.D.34 3.I.05-1 2.C.26	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician	
		15	01	2.8.06-28	2.D.15 2.A.44 3.I.06-1 2.C.26 2.A.04-3 2.A.17-7	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician	
14	Conitor experiment conduct	01	01	3.1.06-1	2.C.26 2.A.04-3 2.B.09	Glass Processing Research Monitor	2263	003.281	Instrumentation Technician	
		01	01	2.8.06-6	2.A.44 2.D.13-1 2.D.13-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician .	
DEV	IL	REVIS	L DAT	ιι ΓΕ:	٦	PREPARED BY: GRH/EMW APP	ROVED	RY: GR	RH SERIES MS-1-A P.	AGEMS-2.1-06

DISCI	PLINE: MATERIALS SCIENCES A	UNAM ON	ACTURIN	G I	PE: MS-1 Ma	terials Sciences and Manufacturing in Sp	ace	MISSION N	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	5-2	3	EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	NCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
14	(Continued)	01	01	2.8.06-7 2.8.06-9	2.D.15 2.B.06-27 2.D.34 4.D.13	Atmosphere Supply/Control System Operation Monitor Power Conditioning/Distribution	1129	003.281	Instrumentation Technician Instrumentation Technician	
		01	01	2.8.06-10	2.8.06-17 2.D.52	System Operation Monitor Furnace Operation Monitor	0985	003.281	Instrumentation Technician	
		01	01	2.8.06-25 2.8.06-17		Silicate Melt Susceptor Operation Monitor VHF Power Unit Operation Monitor	1401	003.281	Instrumentation Technician Instrumentation Technician	
		01 01 01 01	01 01 01 01	2.8.06-2 1.G.02-13 2.8.06-27 2.8.06-11 1.G.02-14	4.D.13 2.B.06-9 2.B.06-1 4.E.04-1 2.D.34 2.D.15 2.B.06-7 2.O.32	Computer Operation Monitor Accident Control System Operation Monitor Atmosphere Analysis Unit Operation Monitor Heating/Positioning Coil Operation Monitor Heat Rejection System Operation Monitor	1055 2264 1343 1259 1146	003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
36	Schedule experiment runs	13	01	3.1.06-1	2.B.06-1 2.B.06-2 2.C.26 6.A.02	Glass Processing Research Planner	1521	022.081	Chemist, Inorganic - Glass	
40	Evaluate experiment results	11	01	3.1.06~1	2.C.26 2.D.27 4.D.04-6	Glass Processing Research Evaluator	1522	022.081	Chemist, Inorganic - Glass	
REV	ISION NO:	REVIS	ION DA	ILTE:		PREPARED BY: GRH/EMW APP	ROVED	BY: GR	H SERIES MS-1-A PA	GEMS-2.1-06-4
٠٠٠٠)						Willy Little				

)(SCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P	ayload N	1S-2 [·]		EXPERIMENT:	2.0 Levitation Experiments 2.1 Preparation of Glasses		BASIC FU	JNCTION: 10 - Unscheduled Mair (See Note MS-4)	tenance
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-1 2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic	
		28 28 07	01 01 01	2.D.13-1 2.D.13-2 2.B.06-5	4.D.18 4.D.18 4.D.22-1 4.C.02	Environmental Chamber Repairer Environmental Chamber Repairer General Purpose Lab Bench Fault Identifier	1065 1065 2265	828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic	
		28 07	01 01	4.D.22-1 2.B.06-2	4.D.18 4.C.02	General Purpose Lab Bench Repairer Instrumentation and Control Center Fault Identifier	2266 2250	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic	1
		07	01	2.8.06-7	2.D.15 4.C.02 2.B.06-27	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic	
	·' .	28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic	
	,	07	01	2.B.06-9	4.D.13 4.C.02 2.8.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic	
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic	
		07	01	2.B.06-10	2.D.24-1 4.C.02	Furnace Fault Identifier	0989	828.281	Electronics Mechanic	
	·	28 07	01 01	2.D.24-1 2.B.06-25	4.D.18	Furnace Repairer Silicate Melt Susceptor Fault Identifier	0988 1395	828.281 828.281	Electronics Mechanic Electronics Mechanic	
•		28 07	01 01	2.D.45 2.A.17-7	4.D.18 4.C.02 4.C.07	Silicate Melt Susceptor Repairer Camera Fault Identifier	1396 0886	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 07	01 01	2.A.17-7 2.B.09	4.D.18 2.A.04-3 4.C.02 4.C.07	Camera Repairer TV Camera Fault Identifier	1195 0689	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 07	01	2.A.04-3 2.B.06-14	4.D.18	TV Camera Repairer Holographic Device Fault Identifier	0690 1233		Electronics Mechanic Electronics Mechanic	
REV	ISION NO:	REVIS	SION DAT	re:	1	PREPARED BY: GRH/EMW APPR	ROVED	BY:	GRH SERIES MS-1-A	PAGE MS-2.1-1

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUFA	ACTURI.4G	F	PE: MS-1 M	terials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle	Sortie		
EXPE	RIMENT AREA: Sortie Lab Pag	yload MS-	-2	F	EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 10 - Unscheduled Maintenance			
,	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATI	ONAL SKILL	REFERENCE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TIT	LE	NOTE NO.	
48	(Continued)	28 07	01 01	2.A.43 2.B.06-17	4.D.18 2.D.52 4.C.02	Holographic Device Repairer VHF Power Unit Fault Identifier	1232 1103	828.281 828.281	Electronics Mecha Electronics Mecha			
		28 07	01 01	2.D.52 2.B.06-2	2.B.06-9 4.D.18 2.B.06-1 4.C.02	VFH Power Unit Repairer Computer Fault Identifier	1102 0523	828.281 828.281	Electronics Mecha Electronics Mecha			
		28 07	01 01	2.B.06-1 1.G.02-14	4.D.18 4.D.14 4.C.02	Computer Repairer Heat Rejection System Fault Identifie	0540 1150	828.281 828.281	Electronics Mecha Electronics Mecha			
	·	28 07	01 01	4.D.14 1.G.02-13	4.D.18	Heat Rejection System Repairer Accident Control System Fault Identifier	1149 2267	828.281 828.281	Electronics Mecha Electronics Mecha			
		28 07	01 01	4.E.04-1 2.B.06-27	4.D.18 2.D.34 4.C.02	Accident Control System Repairer Atmosphere Analysis Unit Fault Identifier		828.281 828.281	Electronics Mecha Electronics Mecha			
		28 07	01 01	2.D.34 2.B.06-11	2.B.06-7 4.D.18 2.D.32 4.C.02	Atmosphere Analysis Unit Repairer Heating/Positioning Coil Fault Identifier	1211 1264	828.281 828.281	Electronics Mecha Electronics Mecha			
	·	28 07	01 01	2.D.32 2.B.06-28	4.D.18	Heating/Positioning Coil Repairer Viewing Device Fault Identifier	1263 1222	828.281 828.281	Electronics Mecha Electronics Mecha			
		28	01	2.A.44	4.C.07 4.D.18 2.D.24-1	Viewing Device Repairer	1223	828.281	Electronics Mecha	inic .		
				ļ								
REVI	SION NO:	REVIS	ION DAT	re:		PREPARED BY: GRH/EMW APP	ROVED	BY: G	RH SERI	IES MS-1-A	PAGEMS-2.1-10-2	

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-2

EXPERIMENT: 2.0 LEVITATION EXPERIMENTS

2.2 SUPERCOOLING & HOMOGENEOUS

NUCLEATION

	PLINE: MATERIALS SCIENCES AN					erials Sciences and Manufacturing in	Shace	Wission V		
EXPE	RIMENT AREA: Sortie Lab	Payload I	MS-2		EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous N	ucleation	BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DE	PENDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFERE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
1	Determine appropriate equipment configuration	11	01	3.1.05-4	2.C.25 2.C.26 2.D.13-4	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
		13	01	3.1.05-4	2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.30-1 2.D.34 2.D.53 2.A.43 4.D.14 2.D.32 2.A.44 2.A.04-3 2.B.06-1 4.D.22-1 2.C.25 2.C.26 2.D.13-4 2.D.13-2 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-4 2.D.13-2 2.D.13-2 2.D.13-4 2.D.32 2.D.44-3 2.D.53 2.D.44-3 2.D.53 2.D.44-3 2.D.53 2.D.44-3 2.D.52 2.D.13-4 2.D.32 2.D.44-3 2.D.52 2.D.13-4 2.D.32 2.D.44-3 2.D.52 2.D.44-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
REV	ISION NO:	REVI	SION DA	TE:		REPARED BY: GRH/EMW A	PPROVED	BY: GS	H SERIES MS-1-A PA	GEMS-2.2-04

DISC	PLINE: MATERIALS SCIÈNCES	AND MANUF	ACTURING	;	FPE: MS-1 Ma	terials Sciences and Manufacturing i	n Space	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pa	ayload MS	5-2		EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
2	Set up apparatus in appropriate configuration	18 22	01 01	2.C.26 2.C.26	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Glass Samples Unstower Glass Samples Translocator	1513 1514	003.281 000.000	Instrumentation Technician General Technical Skill			
		27	01.	2.C.26	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Samples Installer	1515	003.181	Electrical Technician			
		18 22	01 01	2.C.23 2.C.23	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Metal Sample Unstower Metal Sample Translocator	1257 1256	003.281 000.000	Instrumentation Technician General Technical Skill			
		27	01	2.C.23	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Metal Sample Installer	1254	003.181	Electrical Technician			
		18 22	01	2.C.25 2.C.25	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Unstower Materials Sample Translocator	1354 1355	003.281 000.000	Instrumentation Technician General Technical Skill			
		27	01	2.C.25	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Installer	1356	003.181	Electrical Technician			
		18	01	2.D.13-4	4.D.02 2.B.06-4	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician			
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	i		
		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician			
		18	01	2.8.06-2	4.D.02	Instrumentation and Control Center	2240	003.281	Instrumentation Technician	1		
		18	01	2.D.15	4.D.02 2.8.05-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician			
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician			
			<u> </u>	1								
REV	ISION NO:	REVI	SION DA	re:		PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A PA	GE MS-2.2-0		

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUF	ACTURING	i I	FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie				
ENPE	RIMENT AREA: Sortie Lab Pa	yload MS	-2	I	EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE			
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDAR	Y TITLE	NO.	NO.	TITLE	NOTE NO.			
2	Set up apparatus in appropriate configuration	18 22	01 01	2.C.26 2.C.26	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Glass Samples Unstower Glass Samples Translocator	1513 1514	003.281 000.000	Instrumentation Technician General Technical Skill				
i		27	01.	2.C.26	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Samples Installer	1515		Electrical Technician				
		18 22	01 01	2.C.23 2.C.23	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Metal Sample Unstower Metal Sample Translocator	1257 1256	003.281	Instrumentation Technician General Technical Skill				
	,	27	01	2.C.23	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Metal Sample Installer	1254	003.181	Electrical Technician				
		18 22	01 01	2.C.25 2.C.25	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Unstower Materials Sample Translocator	1354	003.281	Instrumentation Technician General Technical Skill				
	·	27	01	2.C.25	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Installer	1356	003.181	Electrical Technician				
		18	01	2.D.13-4	4.D.02 2.B.06-4	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician				
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician				
[18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician				
		18	01	2.B.06-2	4.0.02	Instrumentation and Control Cent Unstower	er 2240	003.281	Instrumentation Technician				
		18	01	2.D.15	4.D.02	Atmosphere Supply and Control	1162	003.281	Instrumentation Technician				
		18	01	4.0.13	2.8.05-7 4.0.02 2.8.06-9	System Unstower Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician				
			<u> </u>		<u></u>								
REV	ISION NO:	REVIS	ION DAT	LE:		PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A PA	GE MS-2.2-04-2			

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUF	ACTURING	3	FPE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION MODE: A - Shuttle Sortie					
EXPER	RIMENT AREA: Sortie Lab Pay	load MS-	2	!	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucl	eation	BASIC FU	NCTION: 04 - Experiment Setup				
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	KDENCY NO. TASK - SKILL			REFERENC				
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.			
2	(Continued)	18 18	01 01	4.B.01-1 2.D.32	4.0.02 1.G.02-13 4.0.02	Accident Control System Unstower Heating/Positioning Coil Unstower	1	003.281	Instrumentation Technician Instrumentation Technician	-			
		22	01	2.D.32	4.D.20 1.G.01-18	Heating/Positioning Coil Translocator		000.000	General Technical Skill				
		27	01	2.D.32	1.G.01-2 1.G.01-6 2.D.52 2.D.13-4 2.D.13-2 4.D.22-1 2.B.06-11	Heating/Positioning Coil Installer		003.181	Electrical Technician				
1		18	10	2.A.44	3.I.05-4 4.D.02	Viewing Device Unstower	1215	003.281	Instrumentation Technician				
		22	01	2.A.44	4.D.20 1.G.01-18 1.G.01-2	Viewing Device Translocator	1216	000.000	General Technical Skill				
		27	01	2.A.44	1.G.01-6 2.C.25 2.C.23 2.C.26 2.D.13-4 2.D.13-2 2.D.32 2.B.06-28	Viewing Device Installer	1217	003.181	Electrical Technician				
\	!	18	01	2.A.30-1	3.I.05-4 4.D.20	Calorimeter Unstower	1482	003.281	Instrumentation Technician				
		22	01	2.A.30-1	4.D.02 1.G.01-18 1.G.01-2	Calorimeter Translocator		000.000	General Technical Skill				
		27	01	2.A.30-1	1.G.01-6 2.B.06-29 2.C.25 2.C.23 2.C.26	Calorimeter Installer	1480	003.181	Electrical Technician				
		18	01	2.D.42	3.I.05-4 4.D.20 4.D.02	Friction Measuring Device Unstower	1494	003.281	Instrumentation Technician				
	,	22	01	2.D.42	1.G.01-18 1.G.01-2 1.G.01-6	Friction Measuring Device Translocator	1493	000.000	General Technical Skill				
REVI	ISION NO:	REVIS	TAD NO	E:	P	REPARED BY: GRH/EMW APP	ROVED	BY:	GRH SERIES MS-1-A PA	GEMS-2.2-04-4			

DISCI	IPLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Ma	terials Sciences and Manufacturing i	n Space	MISSION MODE: A - Shuttle Sortie					
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-2		EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT CREW OPER. TA			TASK DEP	endency no. Task - Skill				PRIMARY OCCUPATIONAL SKILL	REFERENC			
NO.	DESCRIPTION	NO.	ENVIR.	PRIMARY	SECONDARY	TITLE	NO.	ΝΟ.	TITLE	NOTE NO.			
2	(Continued)	27	01	2.0.42	2.B.06-30 2.C.25 2.C.26 2.C.23	Friction Measuring Device Installe	er 1492	003.181	Electrical Technician				
	,	18	oi	2.D.53	3. I. 05-4 4. D. 20 4. D. 02	Chill System Unstower	1068	003.281	Instrumentation Technician				
		22	01	2.D.53	1.G.01-18 1.G.01-2 1.G.01-6	Chill System Translocator	1069	000.000	General Technical Skill				
		27	01	2.D.53	2.B.06-31 2.D.13-2 2.D.13-4 2.D.42 2.A.30-1 2.C.23 2.C.25 2.C.26 3.I.05-4	Chill System Installer	1067	003.181	Electrical Technician				
3	Check equipment functioning	03 03 03	01 01 01	2.D.13-4 2.D.13-2 2.D.15	4.D.09 4.D.09 4.D.09	Environmental Chamber Inspector Environmental Chamber Inspector Atmosphere Supply/Control System Inspector	2271 2271 1986	722.281 722.281 722.281	Inspector, Systems Inspector, Systems Inspector, Systems				
		03 03 03 03 03 03 03 03 03 03 03 03 03 14	01 01 01 01 01 01 01 01 01 01 01 01	4.0.13 2.A.30-1 2.0.42 2.D.34 2.D.53 2.A.43 4.D.14 2.D.32 2.A.44 2.A.04-3 2.D.52 4.E.04-1 4.D.22-1 2.B.06-6	4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09 4.0.09	Power Conditioning/Distribution System Inspector Calorimeter Inspector Friction Measuring Device Inspector Atmosphere Analysis Unit Inspector Chill System Inspector Holographic Device Inspector Heat Rejection System Inspector Heating/Positioning Coils Inspect Viewing Device Inspector TV Camera Inspector TV Camera Inspector Accident Control System Inspector General Purpose Lab Bench Inspect Environmental Chamber Tester Environmental Chamber Tester	r 2275 2276 2270 2277 2277 0278 2279 0079 2280 2281	722.281 722.281 722.281 722.281 722.281 722.281 722.281 722.281 003.181	Inspector, Systems Inspector, Systems Inspector, S				
1877	Ision no:	REVIS	SION DAT	re:	<u> </u>	PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A	PAGE MS-2.2-04-			

DISCI	PLINE: MATERIALS SCIENCES	AND MANUF	CTURING	F	PE: MS-1 Ma	terials Sciences and Manufacturing in S	pace	MISSION MODE: A - Shuttle Sortie				
EXPE:	RIMENT AREA: Sortie Lab P	ayload MS	-2	E	XPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nuc	BASIC FUNCTION: 04 - Experiment Setup					
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCU	PATIONAL SKILL	REFERENC NOTE	
νО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.		TITLE	NO.	
3	(Continued)	14	01	2.B.06-7	2,0.15	Atmosphere Supply/Control System Tester	1987	003.181	Electrical T			
		14 14 14 14 14 14 14 14 14 14	01 01 01 01 01 01 01 01 01 01	2.B.06-9 2.B.06-29 2.B.06-30 2.B.06-31 2.B.06-14 1.G.02-14 2.B.06-12 2.B.06-28 2.B.09 2.B.06-17 1.G.02-13 2.B.06-2	4.0.13 2.A.30-1 2.D.42 2.D.34 2.D.53 2.A.43 4.D.14 2.D.32 2.A.44 2.A.04-3 2.D.52 4.E.04-1 2.B.06-1	Power Conditioning/Distribution System Tester Calorimeter Tester Friction Measuring Device Tester Atmosphere Analysis Unit Tester Chill System Tester Holographic Device Tester Heat Rejection System Tester Heating/Positioning Coil Tester Viewing Device Tester TV Camera Tester VHF Power Unit Tester Accident Control System Tester Computer Tester	2284 2285 2286 2287 2288 1449 2290 2291 2292 0633 2293 2294 2295	003.181 003.181 003.181 003.181 003.181 003.181	Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I Electrical I	echnician echnician echnician echnician echnician echnician echnician echnician echnician echnician echnician		
4	Program controls for prescribed conditions	15	01	2.8.06-4 2.8.06-6	2.D.13-4 3.1.05-4 2.C.23 2.C.25 2.C.26 2.D.13-2	Environmental Chamber Control Actuator Environmental Chamber Control	1173			tion Technician		
		15	01	2.8.06-7	3.1.05-4 2.C.23 2.C.25 2.C.26 2.D.15	Actuator Atmosphere Supply/Control System	1174			tion Technician		
		15	10	2.3.06-9	3.I.05-4 2.C.23 2.C.25 2.C.26 4.D.13 3.I.05-4 2.C.23 2.C.25 2.C.26	Control Actuator Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumenta	tion Technician		
-												
REV	ISION NO:	REVIS	ION DAT	ΓE:	'	PREPARED BY: GRH/EMW AP	PROVED	BY:	GRH	SERIES MS-1-A	PAGEMS-	

DISCI	PLINE: MATERIALS SCIENCES	S AND MANU	ACTURIN	i F	PE: MS-1 Mat	erials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab	Payload MS-	-2	E	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Ne	BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT CREW OPER.			TASK DEPE	NDENCY NO	ENCY NO. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL		
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
4	(Continued)	15	01	2.B.06-29	2.A.30-1 3.I.05-4 2.C.23 2.C.25	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician		
	,	15	01	2.8.06-30	2.C.26	Friction Measuring Device Control	1496	003.281	Instrumentation Technician		
		15	01	2.B.06-27	2.C.26 2.D.34 3.I.05-4 2.C.23 2.C.25	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
		15	01	2.B.06-31	3.I.05-4 2.C.23 2.C.25	Chill System Control Actuator	1181	003.281	Instrumentation Technician		
		15	01	2.8.06-14	3. I. 05-4 2. C. 23 2. C. 25	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
		15	01	1.G.02-14	3. I.05-4 2. C.23 2. C.25	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		15	01	2.8.06-11	2.C.26 2.D.32 3.I.05-4 2.C.23 2.C.25	Heating/Positioning Coils Control Actuator	1260	003.281	Instrumentation Technician		
		15	01	2.8.06-28	2.C.26 2.A.44 3.I.05-4 2.C.23 2.C.25 2.C.26	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician		
ber.	ISION NO:	REVIS	ION DAT	E:		PREPARED BY: GRH/EMW AP	PROVED	RY:	GRH SERIES MS-1-A PA	GE MS-2.2-04	

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	1	FPE: MS-1 Ma	terials Sciences and Manufacturing in S	MISSION MODE: A - Shuttle Sortie					
EXPE	RIMENT AREA: Sortie Lab Pay	/load MS-	2]	EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPI	DEPENDENCY NO. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL REFERE NOT				
NO.	DESCRIPTION	NO.	70.	PRIMARY	SECONDARY	TITLE .	NO.	ΝО.	TITLE	NO.		
4	(Continued)	15	01	2.8.09	2.A.04-3 3.I.05-4 2.C.23 2.C.25	TV System Control Actuator	1549	003.281	Instrumentation Technician			
	,	15	oi	2.B.06-17	2.C.26 2.D.52 3.I.05-4 2.C.23 2.C.25	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician			
		15	01	2.8.06-2	2.C.26 2.B.06-1 3.I.05-4 2.C.23 2.C.25	Computer Control Actuator	0847	003.281	Instrumentation Technician			
		15	01	1.G.02-13	2.C.26 4.E.04-1 3.I.05-4 2.C.23 2.C.25 2.C.26	Accident Control System Control Actuator	2261	003.281	Instrumentation Technician			
		15	01	2.B.06-5	2.C.26 4.D.22-1 3.I.05-4 2.C.23 2.C.25 2.C.26	General Purpose Lab Bench Control Actuator	2260	003.281	Instrumentation Technician			
32	Reconfigure experiments	26	01	2.C.26	2.A.30-1 2.D.42 2.D.53	Glass Sample Remover	1516	003.281	Instrumentation Technician			
		27	01	2.C.26	2.D.32 3.I.05-4 2.A.30-1 2.D.42 2.D.53	Glass Sample Installer	1515	003.181	Electrical Technician			
		26	01	2.C.23	2.0.32 2.A.30-1 2.D.42 2.D.53 2.D.32	Metal Sample Remover	1255	003.181	Electrical Technician			
REV	ISION NO:	REVIS	SION DA	TE:	·······	PREPARED BY: GRH/EMW API	ROVED	BY: G	RH SERIES MS-1-A PA	GEMS-2.2-04-8		

DISC	IPLINE: MATERIALS SCIENCES AND	MANUFA	CTURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION MODE: A - Shuttle Sortie				
EXPI	ERIMENT AREA: Sortie Lab Pay	/load MS	-2		EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	EPENDENCY NO. TASK - SKILL			REFERENCE NOTE				
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE `	NO.		
32	(Continued)	27	01	2.C.23	3. I.05-4 2.A.30-1 2.A.42 2.D.53	Metal Sample Installer	1254	003.181	Electrical Technician			
		26	01	2.C.25	2.D.32 2.A.30-1 2.D.42 2.D.53	Materials Sample Remover	1357	003.181	Electrical Technician			
		27	01	2.C.25	2.D.32 3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Installer	1356	003.181	Electrical Technician			
		26 27	01 01	2.D.13-4 2.D.13-4	4.D.18 4.D.18 3.I.05-4	Environmental Chamber Module Remover Environmental Chamber Module Installer	1059 1060	003.181 003.181	Electrical Technician Electrical Technician			
		26 27	01 01	2.D.13-2 2.D.13-2	4.D.18 4.D.18 3.I.05-4	Environmental Chamber Module Remover Environmental Chamber Module Installer	1059 1060	003.181 003.181	Electrical Technician Electrical Technician			
		15	01	2.8.06-1	3.I.05-4 2.C.26 2.C.25	Computer Control Actuator	0847	003.281	Instrumentation Technician ·			
		15	01	2.8.06-2	2.C.23 3.I.05-4 2.C.26 2.C.23 2.C.25	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician			
		15	01	2.B.06-7	2.B.06-1 3.I.05-4 2.D.15 2.C.26 2.C.23	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician			
	·	26	01	2.0.15	2.C.25 3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Atmosphere Supply and Control System Module Remover	1127	003.181	Electrical Technician			
RE	VISION NO:	REVI	SION DA	TE:	<u></u>	PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A PAGE M	S-2.2-04-		

DISC	PLINE: MATERIALS SCIENCES A	UNAM DA	FACTURIN	iG 1	PPE: MS-1 M	aterials Sciences and Manufacturing	in Space	MISSION M	ODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload M	S-2		EXPERIMENT	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous	Nucleation	BASIC FUN	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO	. TASK - SKILL		I	PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION'	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NO.
32	(Continued)	27	01	2.D.15	3.1.05-4 2.C.26 2.C.23 2.C.25	Atmosphere Supply and Control Syst Module Installer	em 1128	003.181	Electrical Technician	10 To 10 To
		15	oi	2.B.06-6	4.D.18 2.D.13-2 3.I.05-4 2.C.26 2.C.23	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
	·	15 .	01	2.8.06-4	2.C.25 2.D.13-4 3.I.05-4 2.C.26 2.C.23	Environmental Chamber Control	1173	003.281	Instrumentation Technician	
	•	15	01	2.8.06-9	2.C.25 4.D.13 3.I.05-4 2.C.26 2.C.23	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
		26	01	4.D.13	2.C.25 3.I.05-4 2.C.25 2.C.23 2.C.25 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician	
		27	01	4.D.13	3.1.05-4 2.C.26 4.D.18 2.C.23 2.C.25	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician	
		15	10	2.8.06-27	2.0.34 3.1.05-4 2.0.26 2.0.23 2.0.25	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician	
		26	01	2.D.34	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician	
REV	ISION NO:	REVIS	SION DAT	re:		PREPARED BY: GRH/EMW	APPROVED	BY: GRH	SERIES MS-1-A	PAGEMS-2.2-04-X

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 N	aterials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	•
EXPE	RIMENT AREA: Sortie Lab P	ayload M	S-2		EXPERIMENT	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nu	ucleation	BASIC FU	JNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝО.	TITLE	. 50.
32	(Continued)	27	01	2.D.34	3.I.05-4 2.C.26 2.C.23 2.C.25	Atmosphere Analysis Unit Module Installer	1209	003.181	Electrical Technician	
		26	01	2.A.43	4.D.18 3.I.05-4 2.C.26 2.C.23 2.C.25	Holographic Device Remover	1237	003.181	Electrical Technician	
		27	01	2.A.43	4.D.18 3.I.05-4 2.C.26 4.D.18 2.C.23	Holographic Device Installer	1238	003.181	Electrical Technician	
		26	01	2.A.43	2.C.25 3.I.05-4 2.C.26 2.C.23 2.C.25	Holographic Device Module Remover	1235	003.181	Electrical Technician	
		27	01	2.A.43	4.D.18 3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Holographic Device Module Installer	1234	003.181	Electrical Technician	
		15	01	2.8.06-17		VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician	
		26	01	2.D.52	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician	
		27	01	2.D.\$2	4, D. 13 3. I. 05-4 2. C. 26 2. C. 23 2. C. 25 2. B. 06-17 4. D. 13	VHF Power Unit Installer	1091	003.181	Electrical Technician	
REV	ISION NO:	REVIS	ION DAT	E:		PREPARED BY: GRH/EMW AF	PROVED	BY:	GRH SERIES MS-1-A PAG	EMS-2.2-04-1

	PLINE: MATERIALS SCIENCES				TE: MS-1 Ma XPERIMENT:	terials Sciences and Manufacturing in	Space	MISSION BASIC FU	MODE: A - Shuttle Sortie	
XFE	RIMENT AREA: Sortie Lab P	ayload MS-	∙2		APERINENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nu	cleation		JNCTION: 04 - Experiment Setup	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
32	(Continued)	26	01	2.D.52	3. I.05-4 2.C.26 2.C.23 2.C.25	VHF Power Unit Module Remover	1095	003.181	Electrical Technician	
	. ;	27	01	2.D.52	2.B.06-17 4.D.13 4.D.18 3.I.05-4 2.C.26 2.C.23 2.C.25 2.B.06-17	VHF Power Unit Module Installer	1096	003.181	Electrical Technician	
		15	. 01	1.G.02-14	4.D.13 4.D.18 4.D.14 3.I.05-4 2.C.26 2.D.13-4 2.D.13-2	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician	
		26	01	2.A.04-3	2.C.23 2.C.25 1.G.01-7 2.B.09 2.D.13-4	TV Camera Remover	0661	003.181	Electrical Technician	
:		27	01	2.A.04-3	2.D.13-2 1.G.01-7 2.B.09 2.D.13-4 2.D.13-2	TV Camera Installer	0306	003.181	Electrical Technician	
		15	01	2.8.06-11	3.1.05-4 2.0.32 3.1.05-4 2.C.26 2.C.23 2.C.25 2.0.52 2.0.13-4 2.0.13-2 4.0.22-1	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician	
	ISION NO:		SION DAT	<u> </u>		PREPARED BY: GRH/EMW AP	PROVED	BY: GF	RH SERIES MS-1-A PAG	GEMS-2.2-04

DISC	PLINE: MATERIALS SCIENCES	S AND MANUE	FACTURIN	G F	PE: MS-1 Mat	terials Sciences and Manufacturing	in Space	MISSION N	NODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P	Payload MS	-2	E	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous	Nucleation	BASIC FU	NCTION: 04 - Experiment Setu	p
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL	* * * * * * * * * * * * * * * * * * * *		PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
32	(Continued)	26	01	2.0.32	3.I.05-4 2.C.26 2.C.23 2.C.25	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician	
		27	01	2.D.32	2.0.52 2.0.13-4 2.0.13-2 4.0.22-1 2.8.06-11 3.I.05-4 2.C.26 2.C.23 2.C.25 2.0.52 2.0.13-4 2.0.13-2	Heating/Positioning Coil Installe	er 1269	003.181	Electrical Technician	
		15	01	2.8.06-28	4.D.22-1 2.B.06-11 2.A.44 3.I.05-4 2.C.23 2.C.25	Viewing Device Control Actuator 2.C.26	2262	003.281	Instrumentation Technician	
		26	01	2.A.44	2.D.13-4 2.D.13-2 3.I.05-4 2.C.26 2.C.23 2.C.25	Viewing Device Remover	1218	003.181	Electrical Technician	
		27	01	2.A.44	2.D.13-4 2.D.13-2 2.B.06-28 3.I.05-4 2.C.26 2.C.23 2.C.25	Viewing Device Installer	1217	003.181	Electrical Technician	
		15	01	2.B.06 - 29	2.D.13-4 2.D.13-2 2.B.05-28 2.A.30-1 3.1.05-4 2.C.26 2.C.23 2.C.25	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician	
REV	ISION NO:	REVI	SION DA	TE:		REPARED BY: GRH/EMW	APPROVED	BY: GR	H SERIES MS-1-A	PAGEMS-2.2-04-

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	PE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	····	F	EXPERIMENT	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nu	cleation	BASIC FU	JNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCI
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	. NO.
32	(Continued)	26	01	2.A.30-1	2.8.06-29 2.C.25 2.C.23 2.C.26	Calorimeter Remover	1479	003.181	Electrical Technician	
		27	oi	2.A.30-1	3.1.05-4 2.B.06-29 2.C.25 2.C.23 2.C.26	Calorimeter Installer	1480	003.181	Electrical Technician	
		15	01	2.8.06-30	3.I.05-4 2.D.42 2.C.25 2.C.26 2.C.23	Friction Measuring Device Control Actuator	1496	003.281	Instrumentation Technician	
		26	01	2.0.42	3.I.05-4 2.B.06-30 2.C.25 2.C.26 2.C.23	Friction Measuring Device Remover	1491	003.181	Electrical Technician	
		27	01	2.D.42	3.I.05-4 2.B.06-30 2.C.25 2.C.26 2.C.23	Friction Measuring Device Installer	1091	003.181	Electrical Technician	
		15	01	2.8.06-31	3.I.05-4 2.D.53 3.I.05-4 2.C.23 2.C.25	Chill System Control Actuator	1181	003.281	Instrumentation Technician	
	·	26	01	2.0.53	2.C.26 2.B.06-31 2.C.23 2.C.25 2.C.25	Chill System Remover	1070	003.181	Electrical Technician	
		27	01	2.0.53	3.I.05-4 2.B.06-31 2.C.23 2.C.25 2.C.26 3.I.05-4	Chill System Installer	1067	003.181	Electrical Technician	
	<u> </u>		<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>	
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: GRH/EMW A	PPROVED	BY:	GRH SERIES MS-1-A	PAGEMS-2.2-04

DISCIPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPERIMENT AREA: Sortie Lab Pa	yload MS	-2		EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nuc	leation	BASIC F	JNCTION: 04 - Experiment Setup	
CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. DESCRIPTION	.\O.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
35 Calibrate instruments 46 Install data recording equipment	NO. 08 08 08 08 18 22 27	NO.	2.D.27 2.D.52 2.D.32 2.A.43 2.A.30-1 2.D.42 4.D.10 4.D.10	4.C.01 4.C.01 4.C.01 4.C.01 4.C.01 4.C.01 4.C.01 4.D.20 4.D.02 1.G.01-18 1.G.01-2 1.G.01-6 2.B.06-2	Materials Analysis Equipment Calibrator VHF Power Unit Calibrator Heating/Positioning Coil Calibrator Holographic Device Calibrator Calorimeter Calibrator Friction Measuring Device Calibrator Data Recorder Unstower	1046 1097 1333 1227 0380	710.884 710.884 710.884 710.884 710.884 710.884 003.281	Calibrator Calibrator Calibrator Calibrator Calibrator Calibrator Calibrator Instrumentation Technician General Technical Skill Electrical Technician	NO.
REVISION NO:	REVIS	HON DAT	re:		PREPARED BY: GRH/EMW AP	PROVED	BY:	GRH SERIES MS-1-A P	AGEMS-2.2-04-]5

DISCI	PLINE: MATERIALS SCIÉNCES AND	MANUFAC	TURING .		FPE: MS-1 M	aterials Sciences and Manufacturing	in Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-2		EXPERIMENT	2.0 Levitation Experiments 2.2 Supercooling and Homogeneou	s Nucleation	BASIC FU	UNCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	. task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	NO.	NO.	TITLE	NO.
12	Secure samples in containers	26	01	2.C.25	2.A.30-1 2.D.42 2.D.53	Materials Sample Remover	1357	003.181	Electrical Technician	
		22	01	2.0.25	2.D.32 1.G.01-18 1.G.01-6 1.G.01-2	Materials Sample Translocator	1355	000.000	General Technical Skill	
		17	01	2.0.25	2.D.25 4.D.20 4.D.02	Materials Sample Stower	1371	003.281	Instrumentation Technician	
	r	26	01	2.0.23	2.A.30-1 2.D.42 2.D.53	Metal Sample Remover	1255	003.181	Electrical Technician	
	i	22	10	2.C.23	2.D.32 1.G.01-18 1.G.01-6 1.G.01-2	Metal Sample Translocator		000.000	General Technical Skill	
		17	01	2.0.23	2.D.25 4.D.20 4.D.02	Metal Sample Stower	1341	003.281	Instrumentation Technician	
		26	01	2.0.26	2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Sample Remover	1516	003.181	Electrical Technician	
		22	01	2.0.26	1.G.01-18 1.G.01-6 1.G.01-2	Glass Sample Translocator	1514	000.000	General Technical Skill	
		17	01	2.0.26	2.D.25 4.D.20 4.D.02	Glass Sample Stower	1517	003.281	Instrumentation Technician	
13	Clean experiment apparatus	19	01	2.D.13-4	2.C.23 2.C.25 2.C.26 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician	
		19	01	2.A.30-1	2.C.23 2.C.25 2.C.26 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	SION DAT	TE:		PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A PAG	EMS-2.2-05-1

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	1	FPE: MS-1 M	aterials Sciences and Manufacturing in S	Space	MISSION	MODE: A - Shuttle Sortie	**************************************
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	- 2	<u> </u>	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucl	leation	BASIC FU	INCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCI
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝО.	TITLE	NOTE NO.
13	(Continued)	19	01	2.A.30-1	2.C.23 2.C.25 2.C.26 4.D.06	Calorimeter Cleaner	1500	003.281	Instrumentation Technician	
		19	01	2.0.42	2.C.23 2.C.25 2.C.26 4.D.06	Friction Measuring Device Cleaner	1498	003.281	Instrumentation Technician	
		19	01	2.D.32	2.C.23 2.C.25 2.C.26 4.D.06	Heating/Positioning Coils Cleaner	1336	003.281	Instrumentation Technician	
	•	19	01	2.D.27	2.C.23 2.C.25 2.C.26 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician	
14	Dismantle experiment setup	17	01	2.D.13-4	2.B.06-4	Environmental Chamber Stower	1061	003.281	Instrumentation Technician	
	and secure	17	01	2.D.1302	4.D.02 2.B.06-6	Environmental Chamber Stower	1061	003.281	Instrumentation Technician	
		17	01	2.8.06-1	4.D.02 2.B.06-2	Computer Stower	1160	003.281	Instrumentation Technician	
		17	01	2.8.06-2	4.D.02 4.D.02	Instrumentation and Control Center Stower	2246	003.281	Instrumentation Technician	
		17	01	2.D.15	2.B.06-7 4.0.02	Atmosphere Supply and Control System Stower	1169	003.281	Instrumentation Technician	
	,	17	01	4.D.13	2.B.06-9 4.D.02	Power Conditioning/Distribution System Stower	1170	003.281	Instrumentation Technician	
}		16	01	2.8.06-27		Atmosphere Analysis Unit Control Deactuator	1507	003.281	Instrumentation Technician	
		26	01	2.D.34	2.B.06-27 2.D.13-4 2.D.13-2	Atmosphere Analysis Unit Remover	1206	003.181	Electrical Technician	
		22	01	2.D.34	2.D.15 1.G.01-18 1.G.01-6 1.G.01-2	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill	
	q	17	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Stower	1207	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	SION DA	 Te:	T _I	PREPARED BY: GRH/ENW APPI	ROVED	BY:	GRH SERIES MS-1-A PAGE	MS-2.2-05-2

DISCI	PLINE: MATERIALS SCIENCES AND	D MANUFA	CTURING	I	FPE: MS-1 Mate	erials Sciences and Manufacturing in Spa	ce	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	2	1	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucl	eation		JNCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL R	EFERENCI NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
14	(Continued)	16 26 22 17 16 26	01 01 01 01 01	2.B.06-14 2.A.43 2.A.43 2.A.43 2.B.06-17 2.D.52	2.B.06-14 1.G.01-18 1.G.01-6 1.G.01-2 4.D.02 4.D.20 2.D.52 2.B.06-17	Holographic Device Control Deactuator Holographic Device Remover Holographic Device Translocator Holographic Device Stower VHF Power Unit Control Deactuator VHF Power Unit Remover	1237 1239 1236	003.281 003.181 000.000 003.281 003.281 003.181	Instrumentation Technician Electrical Technician General Technical Skill Instrumentation Technician Instrumentation Technician Electrical Technician	
	•	22	01	2.D.52	4.D.13 1.G.01-18 1.G.01-6 1.G.01-2	VHF Power Unit Translocator		000.000	General Technical Skill	
		17	01	2.D.52 4.D.14	4.D.02 4.D.20 1.G.02-14 4.D.02	VHF Power Unit Stower Heat Rejection System Stower		003.281	Instrumentation Technician Instrumentation Technician	
		17 16 26	01 01 01	4.D.22-1 2.B.09 2.A.04-3	4.D.02 2.A.04-3 1.G.01-7 2.B.09	General Purpose Lab Bench Stower TV System Control Deactuator TV Camera Remover	2256 2068 0661	003.281 003.281 003.181	Instrumentation Technician Instrumentation Technician Electrical Technician	
		22	01	2.A.04-3	2.D.13-4 2.D.13-2 1.G.01-18 1.G.01-6 1.G.01-2	TV Camera Translocator	0026	000.000	General Technical Skill	
		17	01	2.A.04-3	4.D.02 4.D.20	TV Camera Stower	0064	003.281	Instrumentation Technician	
		17	01	4.B.01-1	4.D.02 1.G.02-13	Accident Control System Stower	2258	003.281	Instrumentation Technician	
		16	01	2.B.06-11	2.D.32	Heating/Positioning Coil Control Deactuator	1505	003.281	Instrumentation Technician	
		26	01	2.D.32 2.D.32	2.D.52 2.D.13-4 2.D.13-2 4.D.22-1 2.B.06-11 1.G.01-18 1.G.01-6	Heating/Positioning Coil Remover Heating/Positioning Coil Translocator	1268	000.000	Electrical Technician General Technical Skill	
REV	ISION NO:	REVIS	SION DA	re:	1.G.01-2	PREPARED BY: GRH/EMW APPR	ROVED	BY:	GRH SERIES MS-1-A PAGEMS-	2.2-05-3

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUFAC	TURING	F	PE: MS-1 Mat	cerials Sciences and Manufacturing in Sp	ace	MISSION I	MODE: A - Shuttle Sortie	
EXPE:	RIMENT AREA: Sortie Lab P	ayload MS-	2	E	XPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucl	eation	BASIC FU	NCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
14	(Continued)	17	01	2.D.32	4.D.02 4.D.20	Heating/Positioning Coil Stower	1267	003.281	Instrumentation Technician	
		16 26	01 01	2.B.06-28 2.A.44	2.A.44 2.D.13-4 2.D.13-2	Viewing Device Control Deactuator Viewing Device Remover		003.281 003.181	Instrumentation Technician Electrical Technician	
	•	22	01	2.A.44	2.B.06-28 1.G.01-18 1.G.01-6 1.G.01-2	Viewing Device Translocator	1216	000.000	General Technical Skill	
		17	01	2.A.44	4.D.02 4.D.20	Viewing Device Stower	1219	003.281	Instrumentation Technician	
	•	16 26	01 01	2.B.06-29 2.A.30-1	2.A.30-1 2.D.13-4 2.D.13-2	Calorimeter Control Deactuator Calorimeter Remover	0393 1479	003.281 003.181	Instrumentation Technician Electrical Technician	
	•	22	01	2.A.30-1	2.B.06-29 1.G.01-18 1.G.01-6 1.G.01-2	Calorimeter Translocator	1481	000.000	General Technical Skill	
		17	01	2.A.30-1	4.D.20 4.D.02	Calorimeter Stower	1499	003.281	Instrumentation Technician	
		16	01	2.B.06-20	2.D.42	Friction Measuring Device Control Deactuator	1495	003.281	Instrumentation Technician	
		26	01	2.D.42	2.B.06-30 2.D.13-2 2.D.13-4	Friction Measuring Device Remover	1491	003.181	Electrical Technician	
		22	01	2.0.42	1.G.01-18 1.G.01-6 1.G.01-2	Friction Measuring Device Translocator			General Technical Skill	
	4	17	01	2.0.42	4.D.20 4.D.02	Friction Measuring Device Stower		003.281	Instrumentation Technician	ĺ
		16 26	01 01	2.B.06-31 2.D.53	2.0.53 2.8.06-31 2.0.13-4 2.0.13-2	Chill System Control Deactuator Chill System Remover	2297 1070	003.281 003.181	Instrumentation Technician Electrical Technician	
		22	01	2.D.53	1.G.01-18 1.G.01-6 1.G.01-2	Chill System Translocator	1069	000.000	General Technical Skill	
		17	01	2.D.53	4.D.20 4.D.02	Chill System Stower	1073	003.281	Instrumentation Technician	
	ISION NO:		SION DA	<u></u>		REPARED BY: GRH/EWM APPR	ROVED	BY: GR	H SERIES MS-1-A PAGE	

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA(TURING	F	PE: MS-1 Mate	erials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	5-2	F	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nuc	leation		UNCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
22	Prepare photo prints and enlargements	06 06	01 01	4.B.08 4.D.19	2.A.27-6 2.A.27-6	Film Developer Film Developer		976.782 976.782	Film Developer Film Developer	MS-3
23	Transmit photos to ground	10	01	2.A.04-3	2.8.09	TV Camera Controller	0334	003.181	Electrical Technician	MS-3
	by TV	15	01	2.8.09	2.F.02-4 2.A.04-3 5.L.04	TV System Control Actuator	1549	003.281	Instrumentation Technician	
41	Communicate experiment results to earth	05	01	4.A.02	3.I.05-4 2.C.23 2.C.25	Radio Communicator	0206	003.187	Radio Engineer	
	i ·	05	01	3.1.05-4	2.C.26 4.A.02 2.C.23 2.C.25 2.C.26	Crystal Growth Research Coordinator	2298	022.081	Chemist, Inorganic - Glass	
	,									
REV	ISION NO:	REVIS	SION DA	TE:	, L	PREPARED BY: GRH/EMW APP	ROVED	BY:	GRH SERIES MS-1-A PAG	DEMS-2.2-05-5

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	'PE: MS-1 Ma	terials Sciences and Manufacturing in	n Space	MISSION	MODE: A - Shuttle Sortie	
EXPER	RIMENT AREA: Sortie Lab Pay	yload MS	-2	F	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous	Nucleation	BASIC FU	INCTION: 06 - Experiment Conduct	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
	Periodically monitor melting process	01	01	3.I.05-4	2.8.06-11 2.D.32 2.C.23 2.C.25 2.C.26	Crystal Growth Process Monitor	1512	022.081	Chemist, Inorganic - Glass	
		02	o1	3.1.05-4	2.C.25 2.C.25 2.C.26 2.B.09 2.A.04-3 2.B.06-28 2.A.44	Crystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass	
7	Continuously monitor ingot preparation process	01	10	TBD	TBD	TBD	TBD	TBD	TBD	MS-5
	Check operation of automatic measuring equipment	01 01	01 01	2.8.06-29 2.8.06-30	2.A.30-1 2.D.42	Calorimeter Operation Monitor Friction Measuring Device Operatio Monitor	n 0391 1487	003.281 003.281	Instrumentation Technician Instrumentation Technician	,
		01	01	2.8.06-14	2.A.43	Holographic Device Operation Monit	or 1228	003.281	Instrumentation Technician	. [
	Determine second cooling cycle requirements	11	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.53	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
		13	01	3.1.05-4	4.D.14 2.C.23 2.C.25 2.C.26 2.D.53 4.D.14	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
10	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.05-4 2.C.23 2.C.25 2.C.26 2.D.53 4.D.14	Radio Communicator	0206	003.187	Radio Engineer	
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: GRH/EMW	APPROVED	BY: G	GRH SERIES MS-1-A P	AGE MS-2.2-06

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA	CTURING		PPE: MS-1 Ma	terials Sciences and Manufacturing	in Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload Mi	5-2	1	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous	Nucleation		UNCTION: 06 - Experiment Condu	ct 😘
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL		Ì	PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	· NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
11	Program equipment for second cooling cycle	15	01	2.B.06-4	2.D.13-4 3.I.05-4 2.C.23 2.C.25	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
	,	15	01	2.B.06-6	2.C.26 2.D.13-2 3.I.05-4 2.C.23 2.C.25	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
	•	15	01	2.B.06-7	2.C.26 2.D.15 3.I.05-4 2.C.23 2.C.25	Atmosphere Supply/Control System Control Actuator	1174	003.281	Instrumentation Technician	
		15	01	2,B.06-9	2.C.26 4.D.13 3.I.05-4 2.C.23 2.C.25 2.C.26	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
	·	15	01	2.B.06-29		Calorimeter Control Actuator	0392	003.281	Instrumentation Technician	
		15	01	2.B.06-30	2.D.42 3.I.05-4 2.C.23 2.C.25	Friction Measuring Device Contro Actuator	1 1496	003.281	Instrumentation Technician	
		15	อา	2.8.06-27	3.I.05-4 2.C.23 2.C.25	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician	
•		15	01	2.8.06-31	2.C.26 2.D.53 3.I.05-4 2.C.23 2.C.25 2.C.26	Chill System Control Actuator	1181	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A	PAGEYS-2.2-05

DISCI	PLINE: MATERIALS SCIENCES /	AND MANUF	ACTURING	F	PE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab I	Payload M	S-2	E	XPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nuc	leation		UNCTION: 06 - Experiment Conduct	:
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL	-		PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
11	(Continued)	15	01	2.8.06-14	2.A.43 3.I.05-4 2.C.23 2.C.25 2.C.26	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician	
16	Measure sample weights and dimensions	15	01	2.8.06-14	2.A.43 2.C.23 2.C.25 2.C.26 3.I.05-4	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician	
17	Prepare (metallographic) sections of samples	27 27 27 10	01 01 01 01	2.C.23 2.C.25 2.C.26 2.D.27	2.D.27 2.D.27 2.D.27 2.C.23 2.C.25 2.C.26 3.I.05-4	Metal Sample Installer Materials Sample Installer Glass Sample Installer Materials Analysis Equipment Controller	1254 1356 1515 1049	003.181 003.181	Electrical Technician Electrical Technician Electrical Technician Metallurgist Assistant	
18	Perform metallographic examination of sectioned sample grain structure	12	01	2.C.23 2.C.25 2.C.26	2.0.27 3.1.05-4 2.A.18 2.0.27 3.1.05-4 2.A.18 2.0.27 3.1.05-4 2.A.18	Metal Sample Structure Analyzer Materials Sample Structure Analyzer Glass Sample Structure Analyzer	2301 2300 2302	011.281 011.281 011.281 022.081	Metallurgist Assistant Metallurgist Assistant Metallurgist Assistant Chemist, Inorganic - Glass	
19	Dictate notes on voice recorder	10	01	4.D.05-1	3.I.05-4 2.C.23 2.C.25 2.C.26	Tape Recorder Controller	0862	000.000	General Technical Skill	
REV	ISION NO:	REVIS	SION DAT	TE:	<u> </u>	PREPARED BY: GRH/EMW APP	ROVED	BY:	GRH SERIES MS-1-A P	AGE MS-2.2-05-

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUFA	TURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in	n Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P	ayload M	5-1		EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous	Nucleation	BASIC FU	JNCTION: 06 - Experiment Conduc	t
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
ΝО.	DESCRIPTION	NO.	ENVIR.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
19	(Continued)	05	01	3.1.05-4	4.0.05-1 2.C.23 2.C.25 2.C.26	Crystal Growth Data Recorder	1454	000.000	General Technical Skill	
20	Prepare photographs of metallographic sections	15	01	4.D.04-3	2.C.23 2.C.25 2.C.26 2.F.04	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		06	01	2.A.27	2.A.18 4.B.08	Film Processor	0328	976.782	Film Developer	MS-3
21	Analyze metallograph section photographs	12	01	3.1.05-4	2.A.27 2.C.23 2.C.25 2.C.26 4.D.09	Crystal Growth Structure Analyzer	1445	022.081	Chemist, Inorganic - Glass	
24	Initiate experiment sequence	15	01	2.B.06-2	2.B.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician	
36	Schedule experiment runs		01	3.1.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1 6.A.02	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
PEV	ISION NO:	REVIS	SION DAT	TE:		PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A	PAGEMS-2.2-06-4

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA	CTURING	1	FPE: MS-1	Materials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Paylo	oad MS-2		1	EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucl	eation		UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	Y TITLE	NO.	NO.	TITLE	NO.
36	(Continued)	13	01	3.1.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1 6.A.02	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
38	Define experiment conditions	11	01	3.1.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1	Crystal Growth Research Evaluater	1394	022.081	Chemist, Inorganic - Glass	
		13	01	3.1.05-4	6.A.02 2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1 6.A.02	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
39	Monitor experiment performance	01	01	3.1.05-4	2.C.23 2.C.25 2.C.26 2.A.04-3 2.B.09 2.A.44	Crystal Growth Research Monitor	2303	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	ION DAT	E:	<u> </u>	PREPARED BY: GRH/EMW APPR	ROVED	BY: (GRH SERIES MS-1-A PA	GE MS-2.2-05-5

isci	PLINE: MATERIALS SÇIENCES AN	ID MANUF	CTURING	F	PE: MS-1 Ma	terials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie	
XPE	RIMENT AREA: Sortie Lab Pay	/load MS-	-2	E	XPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nuc	leation		UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NUENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERE
ю.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
39	(Continued)	01	01	2.B.06-4	2.D.13-4	Environmental Chamber Operation	1141	003.281	Instrumentation Technician	
		01	01	2.B.06-6	2.D.13-2	Monitor Environmental Chamber Operation	1141	003.281	Instrumentation Technician	ĺ
٠		01	01	2.B.06-7	2.D.15 2.B.06-27	Monitor Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician	
	,	01	01	2.8.06-9	2.D.34 4.D.13 2.B.06-17 2.D.52	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician	
		01	01	2.B.06-17	2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician	
	,	01 01	01 01	2.B.06-2 1.G.02-13	2.B.06-1 4.E.04-1	Computer Operation Monitor Accident Control System Operation Monitor		003.281 003.281	Instrumentation Technician Instrumentation Technician	
		01	01	2.B.06-27	2.D.34 2.D.15 2.B.06-7	Atmosphere Analysis Unit Operation Monitor	1343	003.281	Instrumentation Technician	
		01	01	2.B.06-11	2.D.32	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician	
		01	01	1.G.02-14	4.D.14 2.D.24-1 2.B.06-10	Heat Rejection System Operation Monitor	1146	003.281	Instrumentation Technician	
•		01 01	01 01	2.B.06-29 2.B.06-30	2.A.30-1 2.D.42	Calorimeter Operation Monitor Friction Measuring Device Operation Monitor	0391 1487	003.281 003.281	Instrumentation Technician Instrumentation Technician	
	,	01	01	2.8.06-31	2.D.53	Chill System Operation Monitor	1074	003.281	Instrumentation Technician	
40	Evaluate experiment results	11	01	3.1.05-4	2.C.23 2.C.25 2.C.26 2.F.02-4	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
									<i>p</i>	
REV	ISION NO:	REVIS	SION DA'	re:	<u> </u>	PREPARED BY: GRH/EMW APP	ROVED	BY: GR	H SERIES MS-1-A P	AGEMS-2.2-0

DISCI	PLINE: MATERIALS SCIENCES	AND MANUFA	ACTURING		FPE: MS-1 Mate	erials Sciences and Manufacturing in Sp	ace	MISSION :	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS-2	?		EXPERIMENT:	2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nuc	leation	BASIC FU	NCTION: 10 - Unscheduled Mainten (See Note MS-4)	ance
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
48	Repair experiment equipment	07 07 28 28 07 28 07 28 07 28 07 28 07	01 01 01 01 01 01 01 01 01	2.8.06-4 2.8.06-6 2.0.13-4 2.0.13-2 2.8.06-5 4.0.22-1 2.8.06-2 2.8.06-7 2.0.15 2.8.06-9 4.0.13 2.8.09 2.A.04-3 2.B.06-14	2.D.13-4 4.C.02 2.D.13-2 4.C.02 4.D.18 4.D.18 4.D.22-1 4.C.02 4.D.18 4.C.02 4.D.18 4.C.02 2.B.06-27 4.D.18 4.C.02 2.B.06-17 4.D.18 2.A.04-3 4.C.02 4.C.07 4.D.18 2.A.04-3 4.C.02 4.C.07 4.D.18	Environmental Chamber Fault Identifier Environmental Chamber Fault Identifier Environmental Chamber Repairer Environmental Chamber Repairer Environmental Chamber Repairer General Purpose Lab Bench Fault Identifier General Purpose Lab Bench Repairer Instrumentation and Control Center Fault Identifier Instrumentation and Control Center Repairer Atmosphere Supply and Control System Fault Identifier Atmosphere Supply and Control System Repairer Power Conditioning/Distribution System Fault Identifier Power Conditioning/Distribution System Repairer TV Camera Fault Identifier TV Camera Repairer Holographic Device Fault Identifier	1066 1065 1065 2265 2266 2250 2251 1133 1132 1140 1139 0689 0690 1233	828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
		28 07 28 07 28 07	01 01 01 01 01	2.A.43 2.B.06-17 2.D.52 2.B.06-2 2.B.06-1 1.G.02-14	4.D.18 2.D.52 4.C.02 2.B.06-9 4.D.18 2.B.06-1 4.C.02 4.D.18	Holographic Device Repairer VHF Power Unit Fault Identifier VHF Power Unit Repairer Computer Fault Identifier Computer Repairer Heat Rejection System Fault Identifier	1232 1103 1102 0523 0540 1150		Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
REV	ISION NO:	REVIS	SION DAT	re:	I F	PREPARED BY: GRH/EMW APP	ROVED	BY: GR	H SERIES MS-1-A PA	GE MS-2.2-10-1

DISCI	PLINE: MATERIALS SCIENCES AF	ND MANUFA	CTURING	F	PE: MS-1 Ma	aterials Sciences and Manufacturing		MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	yload MS-	2	E	XPERIMENT	2.0 Levitation Experiments 2.2 Supercooling and Homogeneou	s Nucleation		UNCTION: 10 - Unscheduled Mai (See Note MS-4)	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NUENCY NO	. Task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
48	(Continued)	28 07 28 07 28 07 28 07	01 01 01 01 01 01	4.D.14 1.G.02-13 4.E.04-1 2.B.06-27 2.0.34 2.B.06-11 2.0.32 2.B.06-28	4.D.18 4.E.04-1 4.C.02 4.D.18 2.D.34 4.C.02 2.B.06-7 4.D.18 2.D.32 4.C.02 4.D.18 2.A.44 4.C.02 4.C.07	Heat Rejection System Repairer Accident Control System Fault Identifier Accident Control System Repairer Atmosphere Analysis Unit Fault Identifier Atmosphere Analysis Unit Repaire Heating/Positioning Coil Fault Identifier Heating/Positioning Coil Repaire Viewing Device Fault Identifier	2268 1210 r 1211 1264	828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
		28 07 28 07 28 07 28	01 01 01 01 01 01	2.A.44 2.B.06-29 2.A.30-1 2.B.06-30 2.D.42 2.B.06-31 2.D.53	4.D.18 2.A.30-1 4.C.02 4.D.18 2.D.42 4.C.02 4.D.18 2.D.53 4.C.02 4.D.18	Viewing Device Repairer Calorimeter Fault Identifier Calorimeter Repairer Friction Measuring Device Fault Identifier Friction Measuring Device Repair Chill System Fault Identifier Chill System Repairer	1474 1484	828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
REV	ISION NO:	REVIS	ION DAT	TE:		PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A	PAGEMS-2.2-10-2

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-2

EXPERIMENT: 2.0 LEVITATION EXPERIMENTS

2.3 CRYSTAL GROWTH FROM SOLUTIONS

DISCIPLINE:	MATERIALS SCIENCES AND	D MANUF/	ACTURING	F	PE: MS-1 Mate	erials Sciences and Manufacturing in Sp	Jace	MISSION I	MODE: A - Shuttle Sortie	
EXPERIMENT A	AREA: Sortie Lab Pay	load MS-	-2	E	experiment:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)	,	BASIC FU	UNCTION: 04 - Experiment Setup	
CREW TA	ASK STATEMENT	CREW FUNCT.		TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. I	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
2 Place sa holder	sample in sample	18 22	01 01	2.C.25 2.C.25	4.D.20 2.D.25 1.G.01-18 1.G.01-2	Materials Sample Unstower Materials Sample Translocator	1354	003.281	Instrumentation Technician General Technical Skill	
3 Emplace	e sample holder in	27 27	01	2.C.25 2.D.19-3	1.G.01-2 1.G.01-6 2.D.19-3 2.D.58 2.D.24-1	Materials Sample Installer Sample Holder Installer	1356	003.181	Electrical Technician	
experime 4 Add dop	e sample noider in ment unit pant to liquid on samples	18	01	2.C.04-10	2.C.25 2.D.13-2	Materials Dopant Unstower		003.181	Electrical Technician Instrumentation Technician	
30100.0	a Samples	22	01	2.C.04-10 2.C.04-10	1.G.01-18 1.G.01-2 1.G.01-6	Materials Dopant Translocator Materials Dopant Installer		000.000	General Technical Skill Electrical Technician	
	. !				2.C.25 3.I.05-1 2.D.58 2.D.13-2	nace tars opens and and a		000.10.	tiettrita: iedinitian	
	ine temperature for experiment	11	01	3.1.05-1	2.C.25 2.D.24-1 2.D.32 2.D.13-2 4.D.14 5.D.	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	·
		13	01	3.1.05-1	2.C.25 2.D.24-1 2.D.32 2.D.13-2 4.D.14 5.D.	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
	m temperature ller for cooling	15 15	01	2.B.06-10 2.B.06-2	2.D.24-1 3.I.05-1 2.B.06-1 3.I.05-1	Furnace Control Actuator Computer Control Actuator	1	003.281	Instrumentation Technician Instrumentation Technician	
REVISION NO:):	REVI	SION DA	.TE:		PREPARED BY: GRH/EMW APP	PROVED	BY:	GRH SERIES MS-1-A PAGE	E MS-2.3-04-1

DISCIPLINE: MATERIALS SCIENCES A				· · · · · · · · · · · · · · · · · · ·	erials Sciences and Manufacturing in Space		BASIC FUI	MODE: A - Shuttle Sortie	
EXPERIMENT AREA: Sortie Lab Pay	load mb-z			EXPERIMENT.	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)	·	BASIC FO	ONCTION: 04 - Experiment Setup	
CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEF	PENDENCY NO.	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO. DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
	\[\bar{\}\]				,			•	. [
8 (Continued)	15	01	2.B.06-11	1 2.D.32 3.I.05-1	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician	
	15	01	1.G.02-14	4 4.D.14	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician	
	15	01 .	2.8.06-7		Atmosphere Supply/Control System	1174	003.281	Instrumentation Technician	
	15	01	2.B.06-6		Control Actuator Environmental Chamber Control	1173	003.281	Instrumentation Technician	
	,	1		3.1.05-1	Actuator			1	
11 Setup photographic	18	01	4.D.04-3		Camera Unstower	0292	003.281	Instrumentation Technician	
coverage	22	01	4.0.04-3		Camera Translocator	1226	000.000	General Technical Skill	
		'		1.G.01-2 1.G.01-6	1			1	
	27	01	4.0.04-3	3.1.05-1	Camera Installer	0039	003.181	Electrical Technician	
				2.C.25 2.D.24-1		-		1	
				2.D.13-2	1			1	•
25 Adjust conditions for next		01	3.1.05-1		Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
experiment run per results of previous experiment run				2.D.24-1 2.D.32	,		1		. ·
				2.D.13-2 4.D.14	'			l	
	13	01	3.1.05-1	2.D.24-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
				2.D.32 2.D.13-2	1]	l	
1	26	01	2.C.25	4.D.14 2.D.24-1		1357		Electrical Technician	1
	27 26	01 01	2.C.25 2.D.13-2	2.D.24-1 4.D.18	Environmental Chamber Module Remover	1356 1059	003.181	Electrical Technician Electrical Technician	
	27	01	2.D.13-2	3.1.05-1	Environmental Chamber Module Installer		i I	Electrical Technician	
1	15	01	2.B.06-1	3.I.05-1 2.C.25	Computer Control Actuator	0847	003.281	Instrumentation Technician	
					1				
			1				<u> </u>		<u></u>
REVISION NO:	REVIS	ISION DA	TE:		PREPARED BY: GRH/EMW APPR	ROVED	BY: GRH	SERIES MS-1-A PA	GE4S-2.3-04

XPE	RIMENT AREA: Sortie Lab F	ayload MS-	1	E	XPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NUENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
١٥.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
25	(Continued)	15	01	1.G.02-14	4.D.14 3.I.05-1 2.C.25 2.D.13-2	Heat Rejection System Control	1184	003.281	Instrumentation Technician	
		15	01	2.8.06-2	2.D.24-1 3.I.05-1 2.C.25	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician	
		15	01	2.B.06-7	2.B.06-1 3.I.05-1 2.D.15 2.C.25	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician	
		26	01	2.0.15	3.I.05-1 2.C.25	Atmosphere Supply and Control System Module Remover	1127	003.181	Electrical Technician	
		27	01	2.0.15	4.D.18 3.I.05-1 2.C.25 4.D.18	Atmosphere Supply and Control System Module Installer	1128	003.181	Electrical Technician	
		15	01	2.8.06-6	2.D.13-2 3.I.05-1 2.C.25	Environmental Chamber Control	1173	003.281	Instrumentation Technician	
		15	01	2.8.06-9	4.D.13 3.I.05-1 2.C.25	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
		26	01	4.D.13	3.I.05-1 2.C.25 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician	
٠		27	01	4.D.13	3.1.05-1 2.C.25 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician	
		15	01	2.8.06-10	2.D.24-1 3.I.05-1 2.C.25	Furnace Control Actuator	1175	003.281	Instrumentation Technician	
		26	01	2.0.24-1	3.I.05-1 2.C.25 4.D.18	Furnace Module Remover	0981	003.181	Electrical Technician	
		27	01	2.D.24-1	3. I.05-1 2.C.25 4.D.18	Furnace Module Installer	0982	003.181	Electrical Technician	
		15	01	2.B.06-27	2.D.34 3.I.05-1 2.C.25	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician	
			<u> </u>	<u>L</u>	<u> </u>			<u> </u>		

DISCI	PLINE: MATERIALS SCIENCES AF	ND MANUFA	CTURING	F	PE: MS-1 Mate	rials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-1	l	F	XPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FU	JNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
25	(Continued)	26	01	2.D.34	3.I.05-1 2.C.25 4.D.18	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician	
		27	01	2.D.34	3.I.05-1 2.C.25	Atmosphere Analysis Unit Module	1209	003.181	Electrical Technician	
	•	26	01	2.A.43	4.0.18 3.I.05-1 2.C.25	Holographic Device Remover	1237	003.181	Electrical Technician	
		27	01	2.A.43	4.D.18 3.I.05-1 2.C.25	Holographic Device Installer	1238	003.181	Electrical Technician	
		26	01	2.A.43	4.0.18 3.1.05-1 2.C.25	Holographic Device Module Remover	1235	003.181	Electrical Technician	
		27	01	2.A.43	4.D.18 3.I.05-1 2.C.25	Holographic Device Module Installer	1234	003.181	Electrical Technician	
	•	15	01	2.B.06-17	3.I.05-1 2.C.25	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician	
		26	01	2.D.52	4.D.13 3.I.05-1 2.C.25 2.B.05-17	VHF Power Unit Remover	1094	003.181	Electrical Technician	,
		27	01	2.D.52	4.D.13 3.I.05-1 2.C.25 2.B.05-17	VHF Power Unit Installer	1091	003.181	Electrical Technician	
		26	01	2.0.52	4.0.13 3.1.05-1 2.C.25 2.B.06-17 4.D.13	VHF Power Unit Module Remover	1095	003.181	Electrical Technician	
		27	01	2.0.52	4.D.18 3.I.05-1 2.C.25 2.B.05-17 4.D.13 4.D.18	VHF Power Unit Module Installer	1096	003.181	Electrical Technician	
		<u> </u>								
REV	ISION NO:	REVIS	ION DA	TE:	P	REPARED BY: GRH/EMW API	PROVED	BY:	GRH SERIES MS-1-A PA	GE MS-2.3-04

XPE	RIMENT AREA: Sortie Lab	Payload MS	-1	F	EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
25	(Continued)	15	01	2.8.06-11	2.0.32 3.1.05-1 2.C.25 2.D.52	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician	
		26	01	2.D.32	2.D.13-2 3.I.05-1 2.C.25 2.D.52 2.D.13-2	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician	
	***	27	01	2.0.32	2.B.06-11 3.I.05-1 2.C.25 2.D.52 2.D.13-2	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician	
		15	01	2.8.05-28	2.B.05-11 2.A.44 3.I.05-1 2.C.25 2.D.13-2	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician	
•		26	01	2.A.44	2.D.24-1 3.I.05-1 2.C.25 2.D.13-2 2.D.24-1	Viewing Device Remover	1218	003.181	Electrical Technician	
		27	01	2.A.44	2.B.06-28 3.I.05-1 2.C.25 2.D.13-2 2.D.24-1	Viewing Device Installer	1217	003.181	Electrical Technician	·
		15	01	2.B.06-24	2.B.06-28 2.D.49 3.I.05-1	Crystal Puller Control Actuator	1415	003.281	Instrumentation Technician	
		26	01	2.D.49	2.C.25 3.I.05-1 2.C.25 2.B.06-24 2.D.13-2	Crystal Puller Remover	1419	003.181	Electrical Technician	
REV	VISION NO:	REVIS	SION DA	re:	1,	PREPARED BY: GRH/EMW AI	PPROVED	RY: (GRH SERIES MS-1-A PA	GEMS-2.3-04

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	PE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION MODE: A - Shuttle Sortie				
EXPER	RIMENT AREA: Sortie Lab Pay	load MS-	1	F	EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FU				
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
25	(Continued)	27	01	2.D.49	3. I.05-1 2. C.25 2. B.06-24 2. D.13-2	Crystal Puller Installer	1418	003.181	Electrical Technician			
	•	15	01	2.8.06-18	2.D.56 3.I.05-1 2.C.25	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician			
		26	01	2.0.56	2.A.18 2.B.06-18 2.A.18 3.I.05-1	Heating/Cooling Device Remover	1250	003.181	Electrical Technician			
		27	01	2.D.56	2.C.25 2.B.06-18 2.A.18 3.I.05-1 2.C.25	Heating/Cooling Device Installer	1251	003.181	Electrical Technician			
31	Set up experiment apparatus	18 22	01 01	2.C.25 2.C.25	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Materials Samples Unstower Materials Samples Translocator	1354 1355	003.281 000.000	Instrumentation Technician General Technical Skill			
	,	27	01	2.C.25	2.D.24-1 3.I.05-1	Materials Samples Installer	1356	003.181	Electrical Technician			
		18	01	2.0.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician			
		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician			
		18	01	2.B.06-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician			
		18	01	2.0.15	4.0.02 2.8.06-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician			
	1	18	01	4.0.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician	•		
		18	01	2.0.24-1	4.D.02 2.B.06-10	Furnace Unstower	0980	003.281	Instrumentation Technician			
		18	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Unstower	1203	003.281	Instrumentation Technician			
		22	01	2.D.34	1.G.01-18 1.G.01-2 1.G.01-6	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill			
1,53	ISION NO.	I DEVICE	LION DAY	<u> </u>	<u> </u>	DEFIARED BY. COM/FMW AND	DOVES	DV. CDU	CERTIFIC HE 1 A DECREE	2 2 04 1		
REV	ISION NO:	REVIS	SION DA	re:	F	PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A PAGEMS	-2.3-		

EXPE	PLINE: MATERIALS SCIENCES A	Payload MS	-1		EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL		1	REFERENC		
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
31	(Continued)	27	01	2.D.34	2.D.13-2 2.D.15 2.B.06-27 3.I.05-1	Atmosphere Analysis Unit Installer	1205	003.181	Electrical Technician		
		18	01	2.A.43	4.D.02	Holographic Device Unstower	1240	003.281	Instrumentation Technician		
		22	01	2.A.43	4.D.20 1.G.01-18 1.G.01-2	Holographic Device Translocator	1239	000.000	General Technical Skill		
		27	01	2.A.43	1.G.01-6 2.B.06-14 2.C.25	Holographic Device Installer	1238	003.181	Electrical Technician		
	•	18	01	2.D.52	3.I.05-1 4.D.02	VHF Power Unit Unstower	1092.	003.281	Instrumentation Technician		
		. 22	01	2.D.52	4.D.20 1.G.01-18 1.G.01-2	VHF Power Unit Translocator	1093	000.000	General Technical Skill		
		27	ίŌ	2.D.52	1.G.01-6 2.B.06-17 4.U.13	VFH Power Unit Installer	1091	003.181	Electrical Technician		
		18	01	4.D.14	3.I.05-1 1.G.02-14	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician		
	·	18 18	01 01	4.D.22-1 4.B.01-1	4.0.02 4.0.02 4.0.02 1.G.02-13	General Purpose Lab Bench Unstower Accident Control System Unstower	2252 2253	003.281 003.281	Instrumentation Technician Instrumentation Technician		
		18	01	2.D.32	4.D.32 4.D.20	Heating/Positioning Coil Unstower	1271	003.281	Instrumentation Technician		
		22	01	2.D.32	1.G.01-18 1.G.01-2 1.G.01-6	Heating/Positioning Coil Translocator	1270	000.000	General Technical Skill		
		27	10	2.D.32	2.D.52 2.D.13-2 4.D.22-1 2.B.06-11 3.I.05-1	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician		
		18	01	2.A.44	4.D.02 4.D.20	Viewing Device Unstower	1215	003.281	Instrumentation Technician	1	
		22	01	2.A.44	1.G.01-18 1.G.01-2 1.G.01-6	Viewing Device Translocator	1216	000.000	General Technical Skill		
									RH SERIES MS-1-A PAGE	MS-2.3-04-	

DISCI	PLINE: MATERIALS SCIENCES	AND MANUFA	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION I	MISSION MODE: A - Shuttle Sortie					
EXPER	RIMENT AREA: Sortie Lab P.	ayload MS-	-1		EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FUNCTION: 04 - Experiment Setup						
(CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN				
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.				
31	(Continued)	27	01	2.A.44	2.C.25 2.D.13-2 2.D.24-1 2.B.06-28	Viewing Device Installer	1217	003.181	Electrical Technician	·				
		18	01	2.D.49	3.I.05-1 4.D.02	Crystal Puller Unstower	1416	003.281	Instrumentation Technician					
		22	01	2.D.49	4.D.20 1.G.01-18 1.G.01-2	Crystal Puller Translocator	1417	000.000	General Technical Skill					
	•	27	01	2.D.49	1.G.01-6 2.C.25 2.D.13-2 2.D.24-1 2.B.06-24	Crystal Puller Installer	1418	003.181	Electrical Technician					
	•	18	01	2.D.56	3. I.05-1 4. D.20 4. D.02	Heating/Cooling Device Unstower	1253	003.281	Instrumentation Technician					
		22	01	2.D.56	1.G.01-18 1.G.01-2 1.G.01-6	Heating/Cooling Device Translocator	1252	000.000	General Technical Skill					
		27	01	2.D.56	2.B.06-18 2.A.18 3.I.05-1 2.C.25	Heating/Cooling Device Installer	1251	003.181	Electrical Technician	,				
35.	Calibrate instruments	80	01	2.0.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator					
		08 08 08	01 01 01	2.D.52 2.D.32 2.A.43	4.C.01 4.C.01 4.C.01	VHF Power Unit Calibrator Heating/Positioning Coil Calibrator Holographic Device Calibrator	1097 1333 1227	710.884 710.884 710.884	Calibrator Calibrator Calibrator					
					-									
REVI	ISION NO:	REVIS	ION DA	TE:	<u>. </u>	PREPARED BY: GRH/EMW AF	PROVED	BY: GR	SERIES MS-1-A P.	AGI. HS-2.3-04-				

DISCI	PLINE: MATERIALS SCIENCES	AND MANUFA	CTURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in	MISSION MODE: A - Shuttle Sortie					
EXPEI	RIMENT AREA: Sortie Lab I	Payload MS-			EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)	3	BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			REFERENC			
ΝΟ.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
37	Define apparatus configuration	11	01·	3.1.06-1	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-2 2.B.06-2	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass			
		13	01	3. I. 05-1	2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.14 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1 2.C.25 2.D.15 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.10 2.A.43 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.10 2.A.44 2.D.32 2.B.06-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass			
REV	ISION NO:	REVIS	SION DA	<u>л</u> те:		PREPARED BY: GRH/EMW	APPROVED	BY: GR	SERIES MS-1-A	PAGEMS-2.3-04-		

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing	in Space	MISSION MODE: A - Shuttle Sortie					
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	·1		EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solution (See Note MS-6)	s	BASIC FUNCTION: 04 - Experiment Setup					
(CREW TASK STATEMÉNT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC NOTE			
ΝО.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.			
38	Define experiment conditions	13	01	3.I.05-1	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-2	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic				
					2.8.06-2 2.D.15 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.14 2.D.32 2.A.44 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1								
46	Install data recording system	18	01	4.D.10 4.D.10	4.D.02 4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Unstower Data Recorder Translocator	1519 1520	003.281	Instrumentation Technician General Technical Skill	-			
	_	27	01	4.D.10	2.8.06-1 2.8.06-2	Data Recorder Installer	1156	003.181	Electrical Technician	·			
50	Checkout optical instrumen- tation and measuring devices	03 03 14 14	01 01 01 01	2.D.27 2.A.43 2.D.27 2.A.43	4.D.09 4.D.09 4.C.02 2.B.06-14	Materials Analysis Equipment Inspector Holographic Device Inspector Materials Analysis Equipment Test Holographic Device Tester	2269 2270 1447 1449	722.281 722.281 003.181 003.181	Inspector, Systems Inspector, Systems Electrical Technician Electrical Technician				
REV	ISION NO:	REVIS	SION DAT	re:		PREPARED BY: GRH/EMW	APPROVED	BY: GR	SERIES MS-1-A	PAGEMS-2.3-04-			

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUFA	CTURING	I	FPE: MS-1 Mat	terials Sciences and Manufacturing in S	pace	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab P	ayload MS	5-1		EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FUNCTION: 05 - Experiment Shutdown				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL		PRIMARY OCCUPATIONAL S		REFERENC		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	νо.	ΝО.	TITLE	NOTE NO.		
24	Store crystal for return to earth	26 18	01 01 01	2.C.25 2.C.25 2.C.25	2.F.04 2.D.19-3 1.G.01-18 1.G.01-2 1.G.01-6 2.D.25 4.D.20 4.D.02	Materials Sample Remover Materials Sample Translocator Materials Sample Stower	1357 1355 1371	003.181 000.000 003.281	Electrical Technician General Technical Skill Instrumentation Technician			
33	Refurbish experiment apparatus	19 19· 19 19 19	01 01 01 01 01	2.D.13-2 2.D.24-1 2.D.32 2.D.27 2.D.49 2.D.56	2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06	Environmental Chamber Cleaner Furnace Cleaner Heating/Positioning Coil Cleaner Materials Analysis Equipment Cleaner Crystal Puller Cleaner Heating/Cooling Device Cleaner	1062 0984 1336 1048 1422 2306	003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician			
41	Communicate experiment results to earth	05 05	01	4:A.02 3.I.05-4	3.1.05-4 2.C.25 4.A.02 2.C.25	Radio Communicator Crystal Growth Research Coordinator	0206	003.187	Radio Engineer Chemist, Inorganic			
44	Develop film; make prints	06 06	01 01	4.B.08 4.D.19	2.A.27-6 2.A.27-6	Film Processor Film Processor	0328 0328		Film Processor Film Processor	MS-3 MS-3		
REV	ISION NO:	REVIS	SION DA	re:	l I	PREPARED BY: GRH/EMW AP	PROVED	BY: C	RH SERIES MS-1-A PA	GEM\$-2.3-05-		

	PLINE: MATERIALS, SCIENCES A			I	FPE: MS-1 M	aterials Sciences and Manufacturing in	Space	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-1	l	I	EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth with Solutions (See Note MS-6)		BASIC FU	BASIC FUNCTION: 06 - Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFEREN NOTE		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
1	Activate the experiment equipment	15	01	2.8.06-11	2.D.32 3.I.05-1 2.C.25	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician			
		15	01	2.B.06-6	2.0.25 2.D.13-2 3.I.05-1	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	·		
		15	01	2.8.06-5	4.D.22-1 3.I.05-1	General Purpose Lab Bench Control Actuator	2260	003.281	Instrumentation Technician			
		15	01	2.8.06-7	2.D.15 3.I.05-1 2.C.25 2.D.34	Atmosphere Supply/Control System Control Actuator	1174	003,281	Instrumentation Technician			
	•	15	01	2.B.06-9	4.D.13 3.I.05-1 2.D.52	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician			
		15	01	2.8.06-10	2.0.24-1 3.1.05-1	Furnace Control Actuator	1175	003.281	Instrumentation Technician			
	,	15	10	2.B.06-14	3.1.06-1	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician			
		15	01	2.8.06-17	3.I.06-1 2.C.26	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician			
		15	01	2.8.06-2	4.D.13 2.B.06-1 3.I.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician	,		
		15	01	1.G.02-14	3.1.06-1	Heat Rejection System Control Actuator	1184	003,281	Instrumentation Technician			
		15	01	1.G.02-13	3.1.06-1	Accident Control System Control Actuator	2261	003.281	Instrumentation Technician			
		15	01	2.8.06-27	2.C.26 2.D.34 3.I.06-1 2.C.26 2.D.15	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician			
REV	ISION NO:	REVI	SION DA	re:		PREPARED BY: GRH/EMW API	ROVED	BY: GRH	SERIES MS-1-A PAC	E MS-2.3-06		

DISCI	PLINE: MATERIALS SCIENCES	AND MANUF	ACTURING		FPE: MS-1 Mai	terials Sciences and Manufacturing in	Space	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab P	ayload MS	-1		EXPERIMENT:	Levitation Experiments Crystal Growth from Solutions (See Note MS-6)		BASIC FUNCTION: 06 - Experiment Conduct				
	CREW TASK STATEMENT	CREW	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
1	(Continued)	15	01	2.8.06-28	3.I.05-1 2.C.25	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician			
		15	01	2.8.06-24	3.1.05-1	Crystal Puller Control Actuator	1415	003.281	Instrumentation Technician			
		15	01	2.8.06-18	2.C.25 2.D.56 3.I.05-1 2.C.25 2.A.18	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician			
7	Monitor heating process	01	01	2.B.06-10	2.D.24-1 2.C.25 3.I.05-4 5.D.	Furnace Operation Monitor	0985	003.281	Instrumentation Technician			
		01	01	2.B.06-11	2.D.32 2.C.25 3.I.05-4	Heating/Positioning Coils Operation Monitor	1259	003.281	Instrumentation Technician			
		01	10	2.8.06-18	5.D. 2.D.56 2.C.25 3.I.05-4 5.D.	Heating/Cooling Device Operation	1241	003.281	Instrumentation Technician			
9	Add seed to melt before	18	01	2.C.04-10	2.D.25 4.D.20	Materials Dopant Unstower	2305	003.281	Instrumentation Technician			
	Cooling	22	01	2.0.04-10	1.G.01-18 1.G.01-2	Materials Dopant Translocator	2304	000.000	General Technical Skill			
		27	01	2.0.04-10	1.G.01-6 2.D.19-3 2.C.25 3.I.05-1 2.D.58 2.D.13-2	Materials Dopant Installer	1370	003.181	Electrical Technician			
REV	ISION NO:	REVI	SION DA	TE:		PREPARED BY: GRH/EMW AP	PROVED	BY: GR	SERIES MS-1-A P	AGE MS-2.3-06-2		

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUF	ACTURING	F	'PE: MS-1 M	aterials Sciences and Manufacturing	in Space	MISSION I	MODE: A - Shuttle Sortie		
EXPER	MIMENT AREA: Sortie Lab Pay	load MS-	1	E	XPERIMENT:	2.0 Levitation Experiments2.3 Crystal Growth from Solutions(See Note MS-6)	S	BASIC FUNCTION: 06 - Experiment Conduct			
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			REFERENC		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
10	Initiate cooling process	16	01	2.B.06-10	2.D.24-1 3.I.05-1 2.C.25	Furnace Control Deactuator	1400	003.281	Instrumentation Technician	·	
		16	01	2.8.06-11	2.0.25 2.0.32 3.1.05-1 2.0.25	Heating/Positioning Coils Control	1505	003.281	Instrumentation Technician		
		16	01	2.8.06-18	2.D.56 3.I.05-1 2.C.25	Heating/Cooling Device Control Deactuator	2307	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.A.18 2.D.13-2 3.I.05-1 2.C.25	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
	• ·	15	01	2.8.06-18	2.0.25 2.0.56 3.1.05-1 2.0.25 2.A.18	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician		
12	Activate photographic coverage	15	01	4.D.04-3	3.I.05-1 2.C.25	Camera Control Actuator	0245	003.281	Instrumentation Technician		
13	Monitor cooling process	01	01	2.8.06-6	2.D.13-2 3.I.05-1	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
		10	01	2.B.06-18	2.C.25 2.D.56 3.I.05-1 2.C.25 2.A.18	Heating/Cooling Device Operation Monitor	1241	003,281	Instrumentation Technician		
14	Observe cooling process and crystal formation	02	01	3.1.05-1	2.C.25 2.D.13-2 2.D.56 2.A.18	Crystal Growth Observer	1368	022.081	Chemist, Inorganic		
REVI	SION NO:	REVIS	ION DAT	E:		PREPARED BY: GRH/EMW	APPROVED	BY: GRI	SERIES MS-1-A P	AGE MS-2.3-06-	

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUFA	CTURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie			
EXPE	RIMENT AREA: Sortie Lab P	ayload MS	i-1		EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FUNCTION: 06 - Experiment Conduct				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	Task - skill		PRIMARY OCCUPATIONAL SKILL		REFERENC		
ΝО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
15	Determine crystal growth completion (time)	02	01	3.1.05-1	2.C.25 2.A.18	Crystal Growth Observer	1368	022.081	Chemist, Inorganic - Glass			
		11	01	3.1.05-1	2.E.10 2.C.25	Crystal Growth Process Evaluator	1369	022.081	Chemist, Inorganic - Glass			
i		13	01	3. I. 05-1	2.E.10 2.C.25 2.E.10	Crystal Growth Characteristics Determiner	1444	022.081	Chemist, Inorganic - Glass			
16	Acquire real-time temperature measurements	02	01	3.1.05-1	2.D.13-2 2.C.25 2.B.06-6 2.D.56 2.B.06-18	Crystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass			
		06	01	3.1.05-1	6.A.01-4 5.D. 5.D. 2.C.25 2.D.56 2.D.13-2 6.A.01-4	Crystal Growth Data Recorder	1454	022.081	Chemist, Inorganic - Glass			
17	Obtain hourly temperature measurements	02	01	3.1.05-1	2.D.13-2 2.C.25 2.B.06-6 2.D.56 2.B.06-18 5.D.	Grystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass			
		06	01	3.1.05-1	6.A.01-4 2.D.13-2 2.C.25 2.D.56 5.D. 6.A.01-4	Crystal Growth Data Recorder	1454	022.081	Chemist, Inorganic - Glass			
	·											
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: GRH/EMW A	APPROVED	BY: GR	SERIES MS-1-A PAC	SEMS-2.3-06-4		

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Mate	erials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Paylo	oad MS-1			EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FUNCTION: 06 - Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	. TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFEREN	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
18	Remove crucible/sample holder from furnace	26	01	2.D.19-3	2.D.24-1 2.C.25 2.D.13-2	Sample Holder Remover	2308	003,181	Electrical Technician		
19	Dissolve glassy matrix around crystal	27	01	2.C.04-5	2.D.19-4	Silicate Solvent Applier	1398	022.081	Chemist, Inorganic - Glass		
		02	01	3.1.05-1	3.1.05-1 2.C.25 2.C.04-5	Crystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass		
20	Conduct physical evaluation of crystal	11	01	3.1.05-1	2.C.25 2.D.27-4 2.D.27-6	Crystal Growth Research Evaluator	1394.	022,081	Chemist, Inorganic - Glass		
21	Conduct electrical evaluation of crystal	11	01	3.1.05-1	2.C.25 2.D.27	Crystal Growth Research Evaluator	1394	022,081	Chemist, Inorganic - Glass		
22	Conduct optical evaluation of crystal	11	01	3.1.05-1	2.C.25 2.D.27-1	Crystal Growth Research Evaluator	1394	022,081	Chemist, Inorganic - Glass		
23	Conduct x-ray evaluation of crystal	11	01	3.1.05-1	2.C.25 2.D.27-4	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
36	Schedule experiment runs	13	01	3.1.05-1	2.C.25 2.B.06-1 2.B.06-2 6.A.02	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass		
39	Monitor experiment performance	01	01	3.1.05-1	2.8.06-2 2.B.09	Crystal Growth Research Monitor	2303	003.281	Instrumentation Technician		
	·	01	01	2.B.06-6	2.A.44 2.D.13-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
REV	ISION NO:	REVIS	ION DA	re:	T	PREPARED BY: GRH/EMW AF	PROVED	BY: GRI	H SERIES MS-1-A PAGE	MS-2.3-06	

DISCI	LINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	PE: IIS-1 Ma	terials Sciences and Manufacturing	MISSION MODE: A - Shuttle Sortie				
EXPER	IMENT AREA: Sortie Lab Pa	ayload M	IS-1	I	EXPERIMENT:	2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)	s	BASIC FUNCTION: 06 - Experiment Conduct			
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN	
ĸo.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
39	(Continued)	01	01	2.8.06-7	2.D.15 2.B.06-27 2.D.34	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician		
	•	01	01	2.B.06-9	4.D.13 2.B.06-17 2.D.52	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician	·	
}		01	01	2.B.06-10		Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
İ	,	01	01	2.8.06-17	2.D.52 4.D.13	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01 01	01 01	2.8.06-2 1.G.02-13	2.8.06-9 2.8.06-1 4.E.04-1	Computer Operation Monitor Accident Control System Operation Monitor	1055 2264	003.281 003.281	Instrumentation Technician Instrumentation Technician		
		01	01	2.B.Q6-27	2.D.34 2.D.15 2.B.06-7	Atmosphere Analysis Unit Operation Monitor	n 1343	003.281	Instrumentation Technician		
Ì		01	01	2.B.06-11		Heating/Positioning Coil Operatio	n 1259	003.281	Instrumentation Technician		
		01	01	1.G.02-14	4.D.14 2.D.24-1 2.B.06-10	Heat Rejection System Operation Monitor	1146	003.281	Instrumentation Technician		
		01	10	2.B.06-24		Crystal Puller Operation Monitor	1423	003.281	Instrumentation Technician	,	
	: .	01 01	01	2.8.05-14 2.8.06-18	2.A.43	Holographic Device Operation Moni Heating/Cooling Device Operation Monitor	tor 1228 1241	003.281 003.281	Instrumentation Technician Instrumentation Technician		
40 ·	Evaluate experiment results	11	01	3.1.05-1	2.C.25 2.D.27	Crystal Growth Research Evaluator	1394.	022.081	Chemist, Inorganic - Glass		
								·			
REV	ISION NO:	REVI	SION DA	TE:	<u> </u>	PREPARED BY: GRH/EMW	APPROVED	BY: GR	SERIES MS-1-A PA	GE4S-2.3-06	

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	PE: MS-1	Materials Sciences and Manufacturing in	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab P	ayload M	IS-1	E	XPERIMENT	: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)		BASIC FUNCTION: 10 Unscheduled Maintenance (See Note MS-4)			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO	. TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	TITLE	ĸо.	NO.	TITLE	NOTE NO.	
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
	· i	28 07	01 01	2.D.13-2 2.B.06-5	4.D.18 4.D.22-1 4.C.02	Environmental Chamber Repairer General Purpose Lab Bench Fault Identifier	1065 2265	828.281 828.281	Electronics Mechanic Electronics Mechanic		
		28 07	01 01	4.D.22-1 2.B.06-2	4.D.18 4.C.02	General Purpose Lab Bench Repairer Instrumentation and Control Center Fault Identifier	2266 2250	828.281 828.281	Electronics Mechanic Electronics Mechanic		
	·.	28	01	2.8.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281:	Electronics Mechanic		
		07	01	2.B.06-7	2.D.15 4.C.02 2.B.06-27	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic		
		28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic		
	•	07	01	2.8.06-9	4.D.13 4.C.02 2.B.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
		07	01	2.B.06-10	2.D.24-1 4.C.02	Furnace Fault Identifier	0989	828.281	Electronics Mechanic		
}		28 07	01	2.D.24-1 4.D.04-3	4.D.18 4.C.02 4.C.07	Furnace Repairer Camera Fault Identifier	0988 0886	828.281 828.281	Electronics Mechanic Electronics Mechanic		
		28 07	01 01	4.D.04-3 2.B.06-14	4.D.18 2.A.43 4.C.02 4.C.01 4.C.07	Camera Repairer Holographic Device Fault Identifier	1195 1233	828.281 828.281	Electronics Mechanic Electronics Mechanic		
		28 07	01 01	2.A.43 2.B.06-17	4.0.18 2.0.52 4.0.02 2.8.06-9	Holographic Device Repairer VHF Power Unit Fault Identifier	1232 1103	828.281 828.281	Electronics Mechanic Electronics Mechanic		
		28 07	01 01	2.D.52 2.B.06-2	4.D.18 2.B.06-1 4.C.02	VFH Power Unit Repairer Computer Fault Identifier	1102 0523	828.281 828.281	Electronics Mechanic Electronics Mechanic		
		28 07	01 01	2.B.06-1 1.G.02-14	4.C.02 4.D.18 4.D.14 4.C.02	Computer Repairer Heat Rejection Systems Fault Identifier	0540 1150	828.281 828.281	Electronics Mechanic Electronics Mechanic		
		<u> </u>	<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u> </u>	*******	
REV	ISION NO:	REVIS	SION DA	re:		PREPARED BY: GRH/ENW AF	PROVED	BY: GRH	SERIES MS-1-A PAGEM	S-2.3-10-1	

	PLINE: MATERIALS SCIENCES RIMENT AREA: Sortie Lab I					2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)	·	MISSION MODE: A - Shuttle Sortie BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note MS-4)			
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL	<u> </u>		PRIMARY OCCUPATIONAL SKILL	REFERENC	
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
48	(Continued)	28 07 28 07 28 07 28 07 28 07 28	01 01 01 01 01 01 01 01	4.D.14 1.G.02-13 4.E.04-1 2.B.06-27 2.D.34 2.B.06-11 2.D.32 2.B.06-28 2.A.44 2.B.06-24 2.D.49 2.B.06-18 2.D.56	4.D.18 4.E.04-1 4.C.02 4.D.18 2.D.34 4.C.02 2.B.06-7 4.D.18 2.D.32 4.C.02 4.D.18 2.A.44 4.C.02 4.C.07 4.D.18 2.D.49 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02	Heat Rejection System Repairer Accident Control System Fault Identifier Accident Control System Repairer Atmosphere Analysis Unit Fault Identifier Atmosphere Analysis Unit Repairer Heating/Positioning Coil Fault Identifier Heating/Positioning Coil Repairer Viewing Device Fault Identifier Viewing Device Repairer Crystal Puller Fault Identifier Crystal Puller Repairer Heating/Cooling Device Fault Identifier Heating/Cooling Device Repairer	1149 2267 2268 1210 1211 1264 1263	828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic		
REV	ISION NO:	REVIS	SION DAT	re:	I E	PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A	PAGEMS-2.3-10-	

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-3

EXPERIMENT: 3.0 FURNACE EXPERIMENTS

3.1 COMPOSITE MATERIALS

pisc	IPLINE: MATERIALS SCIENCE AND	MANUFAC	TURING		FPE: MS-1 Mat	erials Science & Manufacturing In Spa	ce	MISSION MODE: A - Shuttle Sortie					
	RIMENT AREA: rtie Lab Payload MS-3				EXPERIMENT 3.1 Composit	3.0 Furnace Experiments e Materials		l .	BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKII	L	REFERENCE NOTE		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		NO.		
1.	Define experiment apparatus configurations	13	01	3.I.04-1 3.I.04-2 3.I.04-3 3.I.04-5 3.I.04-6 3.I.04-6 3.I.04-3 3.I.04-3 3.I.04-5 3.I.04-5 3.I.04-6	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-4 2.C.14-5 2.D.13-1 2.D.13-2 2.B.06-2 4.D.13 2.D.21-1 2.D.21-2 2.D.21-2 2.D.22 2.D.22 2.D.15 2.D.18 2.D.19 2.D.20 2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-3 2.C.14-4 2.C.14-5 2.D.13-1 2.D.21-1 2.D.21-2 2.D.22 2.D.22 2.D.22 2.D.22 2.D.22 2.D.20 2.C.14-1 2.D.13-2 2.D.13-1 2.D.13-2 2.D.21-1 2.D.21-1 2.D.21-1 2.D.21-2 2.D.22 2.D.22 2.D.22 2.D.21-1 2.D.21-2 2.D.21-1 2.D.21-1 2.D.21-2 2.D.22 2.D.22 2.D.22 2.D.22 2.D.22 2.D.21-1 2.D.21-2 2.D.22 2.D.22 2.D.21-1 2.D.21-2 2.D.21-2 2.D.22 2.D.22 2.D.21-1 2.D.21-2 2.D.22 2.D.22 2.D.22 2.D.22 2.D.22 2.D.22 2.D.22 2.D.22 2.D.22 2.D.21-1 2.D.21-2 2.D.20	Composite Materials Research Evaluat		011.281	Metallurgist Assistant				
RE	REVISION NO: REVISION DATE:					PREPARED BY: GRH/EMW A	PPROVED	BY: GRH	SERIESMS-1-A	PAGE	S-3.1-04-1		

CREW TASK STATEMENT CREW TASK STATEMENT CREW TASK DEPENDENCY NO. TASK - SKILL PRIMARY SECONDARY TITLE NO. NO. NO. NO. Program experiment control equipment 13 01 3.1.04-1 2.8.06-1 2.C.14 13 01 3.1.04-2 2.8.06-1 2.C.14 Composite Materials Research Planner 0968 011.281 M 2.8.06-1 2.C.14	Experiment Setup PRIMARY OCCUPATIONAL SKILL TITLE Metallurgist Assistant Metallurgist Assistant
NO. DESCRIPTION NO. PRIMARY SECONDARY TITLE NO. NO.	TITLE NO. Metallurgist Assistant Metallurgist Assistant
NO. DESCRIPTION NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. 7. Program experiment control equipment 13 01 3.I.04-1 2.B.06-1 Composite Materials Research Planner equipment 0968 011.281 M 13 01 3.I.04-2 2.B.06-1 Composite Materials Research Planner equipment 0968 011.281 M	TITLE NO. Metallurgist Assistant Metallurgist Assistant
equipment 13 01 3.I.04-2 2.C.14 2.B.06-1 Composite Materials Research Planner 0968 011.281 M	Metallurgist Assistant
13 01 3.I.04-2 2.B.06-1 Composite Materials Research Planner 0968 011.281 M	
	Watalldet Assistant
13 01 3.I.04-3 2.8.06-1 Composite Materials Research Planner 0968 011.281 M	Metallurgist Assistant
	Metallurgist Assistant
	Metallurgist Assistant
13 01 3.I.04-6 2.B.06-1 Composite Materials Research Planner 0968 011.281 M	Metallurgist Assistant
15 01 2.8.06-2 2.8.06-1 3.1.04-1 3.1.04-2 3.1.04-3 3.1.04-5 3.1.04-6 2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-5 2.C.14-5	Instrumentation Technician .
17. Conduct voice conferences. 05 01 4.A.02 3.I.04 Radio Communicator 0206 003.187 12.D.13-1 2.D.13-2 2.D.24-1 2.D.18	Radio Engineer
01 3.I.04 4.A.02 Composite Materials Research 2309 011.281 Coordinator 2.D.13-1 2.D.13-2 2.D.24-1 2.D.18	Metallurgist Assistant
REVISION NO: REVISION DATE: PREPARED BY: GRH/EMW APPROVED BY: GRH	SERIESMS-1-A PAGE MS-3.1-04-2

DISCI	PLINE: MATERIALS SCIENCE AND	MANUFACT	TURING		FPE: MS-1 Mate	rials Science & Manufacturing In Space	MISSION MODE: A - Shuttle Sortie			
	RIMENT AREA: te Lab Payload MS-3					3.0 Furnace Experiments te Materials			UNCTION: O4 - Experiment Setup	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		
NO.	DESCRIPTION	FUNCT.	ENVIR.	PRIMARY	·		NO.	NO.	TITLE	NOTE NO.
31.	Setup experiment apparatus	18 18 18 18 18 18	01 01 01 01	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 2.C.14	4.D.20 4.D.20 4.D.20 4.D.20 4.D.20 4.D.20 1.G.01-18 1.G.01-6	Composite Materials Sample Unstower Composite Materials Sample Translocator	0975 0975 0975 0975	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician General Technicial Skill	74100
-		27	01	2.C.14	1.G.01-2 3.I.04 2.D.24-1 2.D.21 2.D.47 2.D.18	Composite Materials Sample Installer	0974	003.181	Electrical Technician	
		18	01	2.D.13-1	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
		18	01	2.0.13-2	4.0.02 2.8.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
		18	01	2.8.06-1	4.0.02 2.8.06-2	Computer Unstower	1054	003.281	Instrumentation Technician	
		18	01	2.8.06-2	4.D.02	Instrumentation & Control Center Unstower	2240	003.281	Instrumentation Technician	
•	·	18	01	2.0.15	4.D.02 2.B.06-7	Atmosphere Supply & Control System Unstower	1162	003.281	Instrumentation Technician	
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician	
		18	01	2.D.24-1 2.B.06-10	4.D.02	Furnace Unstower	0980	003.281	Instrumentation Technician	
		18	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Unstower	1203	003.281	Instrumentation Technician	
		22	01	2.D.34	1.G.01-18 1.G.01-2 1.G.01-6	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill	
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DISC	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Mate	erials Science & Manufacturing In Spac	ce	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA:	. ,	-			3.0 Furnace Experiments			JNCTION:	,		
So	rtie Lab Payload MS-3				3.1 Comp	osite Materials		04 - Experiment Setup				
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DE	PENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC NOTE		
ĸО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
31.	(Continued)	27	01	2.D.34	2.D.13-1 2.D.13-2 2.D.15 2.B.06-27	Atmosphere Analysis Unit Installer	1205	003.181	Electrical Technician			
	·	18	01	2.D.52·	4.D.02 4.D.20	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician			
	(22	01	2.D.52	1.G.01-18 1.G.01-2 1.G.01-6	VHF Power Unit Translocator	1093	000.000	General Technical Skill			
		27	01	2.D.52	2.B.06-17 4.D.13 3.I.04	VHF Power Unit Installer	1091	003.181	Electrical Technician			
		18	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician			
		18	01	4.D.22-1	4.D.02	General Purpose Hot Bench Unstower	2252	003.281	Instrumentation Technician			
	·	18	01	4.8.01-1	4.D.02 1.G.02-13	Accident Control System Unstower	2253	003.281	Instrumentation Technician			
		18	01	2.0.21-1	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician			
•		18	01	2.0.21-2	4.D.02 4.D.20	Hixing Unit Unstower	0992	003.281	Instrumentation Technician			
	,	22	01	2.D.21	1.G.01-18 1.G.01-6 1.G.01-2	Mixing Unit Translocator	0993	000.000	General Technical Skill			
		27	01	2.D.21-1	2.B.06-13 2.D.52 3.I.04 2.C.14	Mixing Unit Installer	0991	003.181	Electrical Technician			
		27	01	2.0.21-2	2.B.06-13 2.D.52 3.I.04 2.C.14	Mixing Unit Installer	0991	003.181	Electrical Technician			
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DISCI	PLINE: MATERIALS SCIENCES AND	MANUFACT	TURING		FPE: MS-1 Mat	erials Science & Manufacturing In Space	1	MISSION MODE: A - Shuttle Sortie			
	RIMENT AREA: ie Lab Payload MS-3				EXPERIMENT: 3.1 Compos	3.0 Furnace Experiments ite Materials		BASIC FUNCTION: 04 - Experiment Setup			
-	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC	
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
31.	(Continued)	22	01	2.D.22	1.G.01-18 1.G.01-06 1.G.01-02	Vibrator Translocator	1081	000.000	General Technical Skill		
		27	וס	2.0.22	2.B.06-16 2.D.22 3.I.04 4.D.22-1	Vibrator Installer	1079	003.181	Electrical Technician		
	•	18	01	2.D.18	4.D.20 4.D.02	Dispersion Control System Unstower	1105	003.281	Instrumentation Technician		
		22	อา	2.0.18	1.G.01-18 1.G.01-16 1.G.01-02	Dispersion Control System Translocator	2310	000.000	General Technical Skill	-	
		27	01	2.0.18	2.B.06-12 2.D.19 2.D.24-1 3.I.04 2.C.14 2.D.52	Dispersion Control System Installer	2311	003.181	Electrical Technician		
		18	01	2.0.19	4.D.20 4.D.02	Materials Forming Equipment Unstower	1017	003.281	Instrumentation Technician		
•		22	01	2.D.19	1.G.01-18 1.G.01-06 1.G.01-02	Materials Forming Equipment Translocator	1018	000.000	General Technical Skill		
		27	01	2.0.19	2.D.24-1 3.I.04 2.C.14 2.D.18	Materials Forming Equipment Installer	1016	003.181	Electrical Technician		
32.	Reconfigure experiments.	26	01	2.C.14	2.0.24-1	Composite Materials Sample Remover	0977	003.181	Electrical Technician		
		27	01	2.C.14	2.D,24-1	Composite Sample Installer	0974	003.181	Electrical Technician		
		26	01	2.0.13-1	4.0.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician		
		27	01	2.0.13-1	4.D.18 3.I.04	Environmental Chamber Module Installer	1060	003.181	Electrical Technician		
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: GRH/EMW APE	ROVED	BY: GRH	SERIES MS-1-A	PAGE MS-3.1-04-	

DISC	PLINE: MATERIALS SCIENCES	AND MANUFAC	TURING	1	FPE: MS-1 Ma	terials Science & Manufacturing In Sp	ace	MISSION MODE: A - Shuttle Sortie			
	RIMENT AREA:		-	. 1		3.0 Furnace Experiments			INCTION:		
Sor	tie Lab Payload MS-3				3.1 Compos	ite Materials	04 - Experiment				
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.	
32.	(Continued)	15	01	2.8.06-1	3.I.04 2.C.14	Computer Control Actuator	0847	003.281	Electrical Technician		
•		15	01	2.B.06-2	3.1.04 2.C.14 2.B.06-1	Instrumentation & Control Center Control Actuator	2255	003.281	Instrumentation Technician		
		15	01	2.8.06-7	3.I.04 2.D.15 2.C.14	Atmosphere Supply & Control System Control Actuator	1174	003.281	Instrumentation Technician		
		26	01	2.0.15	3.I.04 2.C.14 4.D.18	Atmosphere Supply & Control System Module Remover	1127	003.181	Electrical Technician		
	·	27	01	2.0.15	3.I.04 2.C.14 4.D.18	Atmosphere Supply & Control System Module Installer	1128	003.181	Electrical Technician		
		15	01	2.8.06-6	2.D.13-1 2.D.13-2 3.I.04 2.C.14	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.8.06-9	4.D.13 3.I.04 2.C.14	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	4.D.13	3.I.04 2.C.14 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician		
		27	01	4.D.13	3.I.04 2.C.14 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician		
		15	01	2.B.06-10	2.D.24-1 3.I.04 2.C.14	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
	·	26	01	2.D.24-1	3.I.04 2.C.14 4.D.18	Furnace Module Remover	0981	003.181	Electrical Technician		
REV	ISION NO:	REVI	SION DA	TE:	1	PREPARED BY: GRH/EMW A	PPROVED	BY: GRH	SERIES MS-1-A	PAGE 115-3.1-04-6	

DISC	IPLINE: MATERIALS SCIENCES A	ND MANUFAC	TURING	I	PE: MS-1 Mat	erials Science & Manufacturing In S	MISSION MODE: A - Shuttle Sortie				
	RIMENT AREA: tie Lab Payload MS-3			1	EXPERIMENT:	3.0 Furnace Experiments ite Materials		BASIC FUNCTION: 04 - Experiment			
	CREW TASK STATEMENT	CREW	OPER.	TASK DEPI	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC	
NO.	DESCRIPTION	FUNCT.	ENVIR.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
32.	(Continued)	27	01	2.0.24-1	3.I.04 2.C.14 4.D.18	Furnace Module Installer	0982	003.181	Electrical Technician		
		15	01	2.B.06-27	2.D.34 3.I.04 2.C.14	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
		26	01	2.D.34	3.I.04 2.C.14 4.D.18	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician		
	•	27	01	2.D.34	3.I.04 2.C.14 4.D.18	Atmosphere Analysis Unit Module Installer	1209	003.181	Electrical Technician		
		26	01	2.D.22	2.C.14 4.D.18	Vibrator Remover	1082	003.181	Electrical Technician		
		27	01	2.0.22	2.C.14 2.C.14 4.D.18	Vibrator Installer	1079	003.181	Electrical Technician		
	·	26	01	2.D.18	3.1.04 2.C.14 4.D.18	Dispersion Control System Remove	r 2312	003.181	Electrical Technician		
	·	27	01	2.D.18	3.I.04 2.C.14 4.D.18	Dispersion Control System Instal	ler 2311	003.181	Electrical Technician		
		15	01	2.8.06-17	2.D.52 3.I.04 2.C.14 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
		26	01	2.0.52	3.I.04 2.C.14 2.B.06-17 4.D.13	VHF Power Unit Remover	1094	.003.181	Electrical Technician		
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17.53	_ <u> </u>	prvie	ION DA	re:		PREPARED BY: GRH/EMW	APPROVED	RV: cou	SERIES MS-1-A	PAGE MS-3.1-04	

Sort	RIMENT AREA: ie Lab Payload MS-3						MISSION MODE: A - Shuttle Sortie					
	ie Lab rayload his-s			1		3.0 Furnace Experiments			JNCTION:			
<u> </u>		·			3.1 Compos	site Materials		04 - Experiment				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
32.	(Continued)	26	01	2.D.52	3.I.04 2.C.14 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Remover	1095	003.181	Electrical Technician			
		27	01	2.0.52	3.1.04 2.C.14 2.B.06-17 4.D.13 4.D.18	VHF Power Line & Module Installer	1096	003.181	Electrical Technician	-		
		15	01	1.G.02-14	4.D.14 3.I.04 2.C.14 2.D.13-1 2.D.13-2 2.D.24-1	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician	· .		
		15	01	2.8.06-13	2.D.21-1 2.D.21-2 3.I.04 2.C.14	Mixing Unit Control Actuator	1177	003,281	Instrumentation Technician			
		27	01	2.0.21-1	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Remover	0994	003.181	Electrical Technician			
		27	01	2.0.21-2	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Remover	0994	003.181	Electrical Technician			
		26	01	2.0.21-1	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Installer	0991	003.181	Electrical Technician			
REV	L ISION NO:	REVIS	ION DAT	TE:	<u></u>	PREPARED BY: GRH/EMW A		BY: GRI	SERIES MS-1-A	PAGEMS-3.1-04-8		

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	RIMENT AREA: ie Lab Payload MS-3					3.0 Furnace Experiments ite Materials		i	BASIC FUNCTION:				
		····			3.1 Compos			04 - Experiment					
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL		<u> </u>	PRIMARY OCCUPATIONAL SKILL	REFERENCI			
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.			
32.	(Continued)	26	01	2.0.21-2	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Installer	0991	003.181	Electrical Technician				
35.	Calibrate instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator				
		80	10	2.0.52	4.C.01	VHF Power Unit Calibrator	1097	710.884	Calibrator				
		08	01	2.D.18	4.C.01	Dispersion Control System Calibrato	r 2313	710.884	Calibrator				
46.	Install data recording system	18	01	4.D.10	4.D.02 4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician				
	.•	22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1	000.000	General Technical Skill				
	1	27	01	4.D.10	2.B.06-1 2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician				
50.	Checkout optical instrumen- tation and measuring . devices	03	01	2.0.27	4.0.09	Materials Analysis Equipment Inspector	2269	722.281	Inspector, Systems				
	!												
REVI	SION NO:	REVIS	ION DAT	E:		PREPARED BY: GRH/EMW AI	PPROVED	BY: GR	H SERIES MS-1-A	PAGE MS-3.1-04-9			

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ENPERIMENT AREA: Sortie Lab Payload MS-3		•			3.0 Furnace Experiments site Materials		BASIC FU	UNCTION: 05 - Experiment Shutdo	nwn
CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO. DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
9 Remove samples from apparatus	26	01	2.C.14-1	2.D.24-1 2.D.13-1 2.D.13-2	Composite Materials Sample Remover	0977	003.181	Electrical Technician	
	26	01	2.C.14-2	2.D.19 2.D.2401 2.D.13-1 2.D.13-2	Composite Materials Sample Remover	0977	003.181	Electrical Technician	-
	26	01	2.C.14-3	2.0.19 2.0.24-1 2.0.13-1 2.0.13-2	Composite Materials Sample Remover	0977	003.181	Electrical Technician	
	26	01	2.C.14-4	2.D.19 2.D.24-1 2.D.13-1 2.D.13-2	Composite Materials Sample Remover	0977	003.181	Electrical Technician	
	26	01	2.C.14-5	2.D.19 2.D.24-1 2.D.13-1 2.D.13-2 2.D.19	Composite Materials Sample Remover	0977	003.181	Electrical Technician	
10 Clean experiment apparatus	19	10	2.D.13-1	2.C.14 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician	
	19	01	2.D.13-2	2.C.14	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician	
•	19	01	2.D.24-1	4.D.06 2.C.14	Furnace Cleaner	0984	003.281	Instrumentation Technician	
	19	01	2.D.27	4.D.06 2.C.14	Materials Analysis Equipment Clean	er 1048	003.281	Instrumentation Technician	
	19	01	2.0.21-1	4.D.06 2.C.14	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician	
	19	01	2.D.21-2	4.D.06 2.C.14	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician	
	19	01	2.D.18	4.D.06 2.C.14	Dispersion Control System Cleaner	1109	003.281	Instrumentation Technician	j
	19	01	2.0.19	4.D.06 2.C.14 4.D.06	Materials Forming Equipment Cleane	r 1021	003.281	Instrumentation Technician	
REVISION NO:	REVIS	ION DA	re:	I	PREPARED BY: GRH/EMW A	PPROVED	BY:	GRH SERIES MS-1-A	PAGEMS-3.1-05

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUFA	ACTURING	F	PE: MS-1 Ma	erials Sciences & Manufacturing in Spac	e	MISSION	MODE: A - Shuttle Sortie	
	RIMENT AREA:			F		3.0 Furnace Experiments		BASIC FU	NCTION: 05 - Experiment Shutdown	
50	ortie Lab Payload MS-3				3.1 Compos	ite Materials				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
11	Secure experiment apparátus	26 22	01 01	2.C.14 2.C.14	2.D.24-1 1.G.01-18 1.G.01-6 1.G.01-2	Composite Materials Sample Remover Composite Materials Sample Translocator	0977 0976	003.181 000.000	Electrical Technician General Technical Skill	
		17 17	01 01	2.C.14 2.D.13-1	4.D.20 2.B.06-6 4.D.02	Composite Materials Sample Stower Environmental Chamber Stower	0978 1061	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		17	01	2.0.13-2	2.B.06-6 4.D.02	Environmental Chamber Stower	1061	003.281	Instrumentation Technician	
		17	01	2.8.06-1	2.B.06-2 4.D.02	Computer Stower	1160	003.281	Instrumentation Technician	
		17	01	2.8.06-2	4.D.02	Instrumentation and Control Center Stower	2246	003.281	Instrumentation Technician	
		17	01	2.0.15	2.B.06-7 4.D.02	Atmosphere Supply and Control System Stower	1169	003.281	Instrumentation Technician	
		17	01	4.0.13	2.B.05-9 4.D.02	Power Conditioning/Distribution System Stower	1170	003.281	Instrumentation Technician	
		17	01	2.D.24-1	2.8.06-10 4.D.02	Furnace Stower	0983	003.281	Instrumentation Technician	
		26	01	2.D.34	2.B.06-27 2.D.13-1 2.D.13-2	Atmosphere Analysis Unit Remover	1206	003.181	Electrical Technician	
		22	01	2.D.34	2.D.15 1.G.01-18 1.G.01-6 1.G.01-2	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill	
		17	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Stower	1207	003.281	Instrumentation Technician	
		26	01	2.D.52	2.B.06-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician	
		22	01	2.D.52	1.G.01-18 1.G.01-6 1.G.01-2	VHF Power Unit Translocator	1093	000.000	General Technical Skill	
		17	01	2.D.52	4.D.02 4.D.20	VHF Power Unit Stower	1098	003.281	Instrumentation Technician	
		17	01	4.0.14	1.G.02-14 4.D.02	Heat Rejection System Stower	1145.	003.281	Instrumentation Technician	
	,	17 17	01	4.D.22-1 4.B.01-1	4.0.02 4.0.02 1.G.02-13	General Purpose Lab Bench Stower Accident Control System Stower	2256 2258	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u></u>		1
REY	VISION NO:	REVIS	SION DA	TE:		REPARED BY: GRH/EMW APPI	ROVED	BY: G	RH SERIES MS-1-A PAG	EMS-3.1-05-2

DISCIP	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	1	FPE: MS-1 Mate	rials Sciences & Manufacturing in Space	:	MISSION	MODE: A - Shuttle Sortie	
	NIMENT AREA: ortie Lab Payload MS-3			1		3.0 Furnace Experiments ite Materials		BASIC FU	NCTION: 05 - Experiment Shutdown	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCI NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
11	(Continued)	26	01	2.D.21-1	2.D.52 2.B.06-13	Mixing Unit Remover	0994	003.181	Electrical Technician	
1	•	26	01	2.0.21-2	2.D.52 2.B.06-13	Mixing Unit Remover	0994	003.181	Electrical Technician	
		22	01	2.0.21	1.G.01-18 1.G.01-6 1.G.01-2	Mixing Unit Translocator	0993	000.000	General Technical Skill	
l		17	01	2.0.21	4.D.02 4.D.20	Mixing Unit Stower	0997	003.281	Instrumentation Technician	
		26	01	2.D.22	2.D.52 2.B.06-16	Vibrator Remover	1082	003.181	Electrical Technician	
		22	01	2.0.22	1.G.01-18 1.G.01-6 1.G.01-2	Vibrator Translocator	1081	000.000	General Technical Skill	
		17	01	2.D.22	4.C.02 4.C.20	Vibrator Stower	1085	003.281	Instrumentation Technician	
	,	26	01	2.D.18	2.B.06-12 2.D.24-1 2.D.19	Dispersion Control System Remover	2312	003.181	Electrical Technician	
		22	01	2.D.18	1.G.01-18 1.G.01-6 1.G.01-2	Dispersion Control System Translocator	2310	000.000	General Technical Skill	
		17	01	2.D.18	4.C.02 4.C.20	Dispersion Control System Stower	1107	003.281	Instrumentation Technician	
15	Prepare experiment notes	06	01	3.1.04	2.C.14 2.F.02 2.F.02-1	Composite Materials Data Recorder	0969	000.000	General Technical Skill	
17	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.04 2.C.14 2.D.13-1 2.D.13-2 2.E.24-1	Radio Communicator	0206	003.187	Radio Engineer	
		05	·01	3.1.04	2.D.18 4.A.02 2.C.14 2.D.13-1 2.D.13-2 2.D.24-1	Composite Materials Research Coordinator	2309	011.281	Metallurgist Assistant	
REVI	SION NO:	REVIS	ION DAT	re:	= 2.D.18 P	REPARED BY: GRH/EMW APPI	ROVED	BY: G	RH SERIES MS-1-A PA	GEMS-3.1-05-3

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 N	Materials Sciences & Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Payload MS-3					3.0 Furnace Experiments site Materials		BASIC F	UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DE	PENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
12	Perform metallographic examinations	12	01	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5	3.I.04-1 3.I.04-2 3.I.04-3	Composite Materials Structure Analyzer	0971	011.281	Metallurgist Assistant	
13	Perform sample evaluation , tests	11	01	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5	3.1.04-1	Composite Materials Sample Evaluator	2314	011.281	Metallurgist Assistant	
14	Determine need for repetition and changes	11	01	3.1.04	2.C.14 2.D.24-1 2.D.21-1 2.D.21-2 2.D.22	Composite Materials Research Evaluator	0973	011.281	Metallurgist Assistant	
	·	13	01	3.1.04	2. D. 18 2. C. 14 2. D. 24-1 2. D. 21-1 2. D. 21-2 2. D. 22 2. D. 18	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant	
15	Prepare experiment notes	06	01	3.1.04	2.C.14 2.F.02 2.F.02-1	Composite Materials Data Recorder	0969	000.000	General Technical Skill	
REV	ISION NO:	REVIS	SION DA	TE:	1	PREPARED BY: GRH/EMW AP	PROVED	BY:	GRH SERIES MS-1-A PA	GEMS-3.1-06-1

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUF	ACTURING		FPE: MS-1 Mate	erials Sciences & Manufacturing in Space	е .	MISSION I	NODE: A - Shuttle Sortie	
	RIMENT AREA:			1		3.0 Furnace Experiments		BASIC FU	NCTION: 06 - Experiment Conduc	t
S	ortie Lab Payload MS-3		·		3.1 Compo	site Materials				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
20	Prepare metallographic sections of samples	27	01	2.C.14	2.D.27-1 2.D.27-2 2.D.27-3 3.I.04	Composite Materials Sample Installer	0974	003.181	Electrical Technician	
		10	01	2.0.27-1	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5	Materials Analysis Equipment Controller	1049	011.281	Metallurgist Assistant	
		10	01	2.D.27-2	2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5	Materials Analysis Equipment Controller	1049	011.281	Metallurgist Assistant	
		10	01	2.0.27-3	3.I.04 2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 3.I.04	Materials Analysis Equipment Controller	1049	011.281	Metallurgist Assistant	
36	Schedule experiment runs	13	01	3.1.04	2.8.06-1 2.8.06-2 2.C.14 6.A.02	Composite Materials Research Planner	0968	0]].281	Metallurgist Assistant	
REV	ISION NO:	REVI	SION DA	re:		PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A F	PAGE'S-3.1-05-2

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	•	FPE: MS-1 Ma	terials Sciences & Manufacturing in Spac	ce	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA:			ţ	EXPERIMENT:	3.0 Furnace Experiments		BASIC FL	NCTION: 06 - Experiment Conduc	ct
	Sortie Lab Payload MS-3			}	3.1 Compos	site Materials				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
ĸo.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
-	Define experiment conditions	13	01	3.1.04	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 2.D.13-1 2.D.13-2 4.D.13 2.D.24-1 2.D.21-1 2.D.21-2 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18	Composite Materials Research Planner	0968	011.281	Metallurgical Assistant	
39	Monitor experiment performance	01 01 01 01 01	01 01 01 01 01 01	3. I. 04 2. B. 06-6 2. B. 06-7 2. B. 06-9 2. B. 06-10 2. B. 06-17	2.D.13-1 2.D.13-2 2.D.52 4.D.13 2.B.06-9 2.B.06-1	Composite Materials Research Monitor Environmental Chamber Operation Monitor Atmosphere Supply/Control System Operation Monitor Power Conditioning/Distribution System Operation Monitor Furnace Operation Monitor VHF Power Unit Operation Monitor Computer Operation Monitor	2315 1141 1129 1136 0985 1099	003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
		01	01	1.G.02-13	4.E.04-1	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician	
REV	'ISION NO:	REVIS	SION DAT	re:		PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A	PAGE MS-3.1-06-3

บเรต	IPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	I	FPE: MS-1 Mat	cerials Sciences & Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA:			1		3.0 Furnace Experiments		BASIC FU	NCTION: 06 - Experiment Cond	uct
	Sortie Lab Payload MS-3	·.,	·	<u> </u>	3.1 Compos	site Materials				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
39	(Continued)	01 01	01	2.B.06-27 2.B.06-13		Atmosphere Analysis Unit Operation Monitor Mixing Unit Operation Monitor	1343	003.281	Instrumentation Technician Instrumentation Technician	
•		01 01	01 01	2.B.05-16 1.G.02-14	4.0.14	Vibrator Operation Monitor Heat Rejection System Operation	1086 1146	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		01	01	2.B.06-12	2.D.24-1 2.D.18	Dispersion Control System Operation Monitor	1110	003.281	Instrumentation Technician	
40	Evaluate experiment results	11	on	3.1.04	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 2.D.27 2.F.02	Composite Materials Research Evaluator	0973	011.281	Metallurgist Assistant	
REV	/ISION NO:	REVIS	ION DA	re:		PREPARED BY: GRH/EMW A	PPROVED	BY: GRI	SERIES MS-1-A	PAGEMS-3.2-06-4

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	I	PPE: MS-1 Ma	terials Sciences & Manufacturing in Space	ce	MISSION 1	NODE: A - Shuttle Sortie	
•	RIMENT AREA:			1		3.0 Furnace Experiments		BASIC FU	NCTION: 10 - Unscheduled Mainter	nance
	Sortie Lab Payload MS-3				· · · · · · · · · · · · · · · · · · ·	site Materials				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ĸО.	TITLE	NO.
48	Repair experiment equipment	07	01	2.8.06-6	2.D.13-1 2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic	
		28 28 07	01 01 01	2.D.13-1 2.D.13-2 2.B.06-5	4.D.18 4.D.18 4.D.22-1 4.C.02	Environmental Chamber Repairer Environmental Chamber Repairer General Purpose Lab Bench Fault Identifier	1065 1065 2265	828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic	
	·	28 07	01	4.D.22-1 2.B.06-2	4.D.18 4.C.02	General Purpose Lab Bench Repairer Instrumentation and Control Center Fault Identifier	2266 2250	828.281 828.281	Electronics Mechanic Electronics Mechanic	
	,	28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic	
		07	01	2.8.06-7	2.D.15 4.C.02 2.B.06-27	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic	
		28	01	2.0.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic	
	;	07	01 .	2.8.06-9	4.0.13 4.0.02 2.8.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic	
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic	
		07	01	2.B.06-10	2.D.24-1 4.C.02	Furnace Fault Identifier	0989	828.281	Electronics Mechanic	
		28 07	01 01	2.D.24-1 2.B.06-13	4.D.18 2.D.21-1 2.D.21-2	Furnace Repairer Mixing Unit Fault Identifier	0988 1003	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 28 07	01 01 01	2.0.21-1 2.0.21-2 2.8.06-16	4.C.02 4.D.18 4.D.18 2.D.22 4.C.02	Mixing Unit Repairer Mixing Unit Repairer Vibrator Fault Identifier	1002 1002 1090	828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic	
		28 07	01 01	2.D.22 2.B.06-17	4.D.18	Vibrator Repairer VHF Power Unit Fault Identifier	1089 1103	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 07	01 01	2.D.52 2.B.06-2	4.0.18 2.8.06-1 4.C.02	VHF Power Unit Repairer Computer Fault Identifier	1102 0523		Electronics Mechanic Electronics Mechanic	
		28	01	2.8.06-1	4.0.02 4.D.18	Computer Repairer	0540	828.281	Electronics Mechanic	
REV	ISION NO:	REVIS	ION DA	LE:		PREPARED BY: GRH/EMW APP	ROVED	BY: GR	SERIES MS-1-A PA	GEMS-3.1-10-1

DISCI	PLINE: MATERIALS SCIENCES À	ND MANUF	ACTURING	F	PE: MS-1 Ma	terials Sciences & Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA:			E	XPERIMENT:	3.0 Furnace Experiments		BASIC F	UNCTION: 10 - Unscheduled Ma	intenance
	Sortie Lab Payload MS-3				3.1 Compo	site Materials		<u> </u>		
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
48	(Continued)	NO. 07 28 07 28 07 28 07 28	01 01 01 01 01 01 01	1.G.02-14 4.D.14 1.G.02-13 4.E.04-1 2.B.06-27 2.D.34 2.B.06-12 2.D.18	4.D.14 4.C.02 4.D.18 4.E.04-1 4.C.02 4.D.18 2.D.34 4.C.02 2.B.06-7 4.D.18 2.D.18 4.C.02 4.D.18	Heat Rejection System Fault Identifier Heat Rejection System Repairer Accident Control System Repairer Accident Control System Repairer Accident Control System Repairer Atmosphere Analysis Unit Fault Identifier Atmosphere Analysis Unit Repairer Dispersion Control System Fault Identifier Dispersion Control System Repaire	1150 1149 2267 2268 1210	828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	NO.
REV	ISION NO:	REVIS	SION DA	re:	1	PREPARED BY: GRH/EMW	APPROVED	BY: GF	RH SERIES MS-1-A	PAGE MS-3.1-10-2

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-3

EXPERIMENT: 3.0 FURNACE EXPERIMENTS

3.2 DIRECTIONAL SOLIDIFICATION

DISCIPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	PE: MS-1 Ma	iterials Sciences and Manufacturing in	Space	MISSION N	MODE: A - Shuttle Sortie	
EXPERIMENT AREA: Sortie Lab Pa	yload MS	5-3	F	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	NCTION: 04 - Experiment Setup	
CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL	_		PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
l Formulate selected materials slip (slurry)	13 18	01 01	3.I.04-9 2.C.23	2.C.23 2.D.50 4.D.20	Liquid Dispersions Research Planner Metal Samples Unstower	1346 1257	011.281 003.281	Metallurgist Assistant Instrumentation Technician	
	22 27	01 01	2.C.23 2.C.23	2.D.25 1.G.01-18 1.G.01-6 1.G.01-2 2.D.19 2.D.21-1 2.D.21-2	Metal Samples Translocator Metal Samples Installer	1256	000.000 003.181	General Technical Skill Electrical Technician	
·	10	01	2.C.23	3.I.04-9 2.D.19 2.D.19 3.I.04-9	Slip Formulation Controller	1347	011.281	Metallurgist Assistant	
2 Store slip in monporous container	17	01	2.C.23	2.D.25	Slip Materials Stower	1348	003.281	Instrumentation Technician	
3 Select mold of suitable complexity	13	01	2.0.19-1	2.C.23 3.I.04-9	Liquid Dispersions Research Planner	1346	011.281	Metallurgist Assistant	
31 Set up experiment apparatus	18	01	2.0.13-1	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
•	18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
	18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician	
	18	01	2.8.06-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician	
	18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician	
	18	01	2.D.24-1	4.D.02 2.B.05-10	Furnace Unstower	0980	003.281	Instrumentation Technician	
	18	01	2.0.52	4.D.02 4.D.20	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician	
	22	01	2.D.52	1.G.01-18 1.G.01-2 1.G.01-6	VHF Power Unit Translocator	1093	000.000	General Technical Skill	
REVISION NO:	REVIS	SION DAT	re:	1 1	PREPARED BY: GRH/EMW API	ROVED	BY: GR	H SERIES MS-1-A PAC	EMS-3.2-04-1

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUFA	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS-	3		EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	INCTION: 04 - Experiment Setup	
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
31	(Continued)	27	01	2.D.52	2.B.06-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician	
		18	01	4.D.14	3.I.04 1.G.02-14	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician	
	,	18 18	01 01	4.D.22-1 4.B.01-1	4.D.02 4.D.02 4.D.02	General Purpose Lab Bench Unstower Accident Control System Unstower	2252 2253	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		18	01	2.D.21-1	1.G.02-13 4.D.02	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		18	01	2.D.21-2	4.D.20 4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		18	01	2.D.21-3	4.D.02	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		22	01	2.D.21	4.D.20 1.G.01-18 1.G.01-6	Mixing Unit Translocator	0993	000.000	General Technical Skill	
		27	01	2.0.21-1	1.G.01-2 2.B.06-13 2.D.52 3.I.04 2.C.23	Mixing Unit Installer	0991	003.181	Electrical Technician	
		27	01	2.D.21-2	2.C.24 2.B.06-13 2.D.52 3.I.04	Mixing Unit Installer	0991	003.181	Electrical Technician	
•		27	01	2.D.21-3	2.C.23 2.C.24 2.B.06-13 2.D.52 3.I.04 2.C.23	Mixing Unit Installer	0991	003.181	Electrical Technician	
		18	01	2.D.22	2.C.24 4.D.02	Vibrator Unstower	1080	003.281	Instrumentation Technician	
		22	01	2.D.22	4.D.20 1.G.01-18	Vibrator Translocator	1081	000.000	General Technical Skill	
,		27	01	2.D.22	1.G.01-06 1.G.01-02 2.B.06-16 2.D.52	Vibrator Installer	1079	003.181	Electrical Technician	
1,50.7	SION NO:		ION DAT		3. I.04 4. D. 22-1	REPARED BY: GRH/EMW AP	PROVED	nv.	RH SERIES MS-1-A P	GE MS-3.2-04-

oisci	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 M	aterials Sciences and Manufacturing in Sp	pace	MISSION	MODE: A - Shuttle Sortie	
ENPE	RIMENT AREA: Sortie Lab Pay	load MS-	3		EXPERIMENT	: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO	. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC NOTE
١٥.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDAR	Y TITLE	NO.	NO.	TITLE	NO.
31	(Continued)	18	01	2.0.18	4.D.20 4.D.02	Dispersion Control System Unstower	1105	003.281	Instrumentation Technician	
		22	01	2.0.18	1.G.01-18 1.G.01-06 1.G.01-02	· ·		000.000	General Technical Skill	
	·	27	01	2.D.18	2.B.06-12 2.D.19 2.D.24-1 3.I.04 2.C.14 2.D.52	Dispersion Control System Installer	2311	003.181	Electrical Technician	
,		18	07	2.D.19	4.D.20 4.D.02	Materials Forming Equipment Unstower	1017	003.281	Instrumentation Technician	
	·	22	01	2.0.19	1.G.01-18 1.G.01-06 1.G.01-02	Translocator	1018	000.000	General Technical Skill	
		27	01	2.0.19	2.D.24-1 3.I.04 2.C.14 2.D.18	Materials Forming Equipment Installer	1016	003.181	Electrical Technician	
		18	01	2.0.32	4.D.20 4.D.02	Heating/Positioning Coils Unstower	1271	003.281	Instrumentation Technician	
		22	01	2.0.32	1.G.01-18 1.G.01-06 1.G.01-02		r 1270	000.000	General Technical Skill	
		27	01	2.D.32	3. I.04 2.8.06-11 2.D.24-1	Heating/Positioning Coils Installer	1269	003.181	Electrical Technician	
		18	01	2.A.17-7	4.D.20 4.D.02	Camera Unstower	0292	003.281	Instrumentation Technician	
		22	01	2.A.17-7	1.G.01-18 1.G.01-06 1.G.01-02		1226.	000.000	General Technical Skill	
	· · · · · · · · · · · · · · · · · · ·	27	01	2.A.17-7	3.I.04 2.C.23 2.D.24-1 1.G.01-7 2.C.24	Camera Installer	0039	003.181	Electrical Technician	
REV	ISION NO:	REVIS	ION DAT	re:	<u> </u>	PREPARED BY: GRH/EMW APP	ROVED	BY:	GRH SERIES MS-1-A	AGE MS-3.2-04-

DISCH	PLINE: MATERIALS SCIENCES AN	ID MANUFA	CTURING	F	FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPEI	RIMENT AREA: Sortie Lab Pay	load MS-	.3	I	EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)			BASIC FUNCTION: 04 - Experiment Setup				
(CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC NOTE		
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
31	(Continued)	18 22	01 01	2.A.04-3 2.A.04-3	4.D.02 4.D.20 1.G.01-18	TV Camera Unstower TV Camera Translocator	0054 0026	003.281	Instrumentation Technician General Technical Skill			
		27	- 01	2.A.04-3	1.G.01-2 1.G.01-6 1.G.01-7 2.B.09 2.D.13-4 2.D.13-2 2.D.32 2.D.32	TV Camera Installer	0306	003.181	Electrical Technician			
		18	01	2.A.43	4.D.02 4.D.20	Holographic Device Unstower	1240	003.281	Instrumentation Technician			
		22	01	2.A.43	1.G.01-18 1.G.01-2	Holographic Device Translocator	1239	000.000	General Technical Skill			
		27	01	2.A.43	1.G.01-6 2.B.06-14 2.C.26	Holographic Device Installer	1238	003.181	Electrical Technician			
		18	01	2.D.50	3.I.04 4.D.20	Slip Cast Injection System Unstower	1116	003.281	Instrumentation Technician			
	·	22	01	2.D.50	4.D.02 1.G.01-18 1.G.01-2	Slip Cast Injection System Translocator	1117	000.000	General Technical Skill			
		27	01	2.0.50	1.G.01-6 2.B.06-33 3.I.04-9 2.C.23 2.D.18 2.D.19	Slip Cast Injection System Installer	1115	003.181	Electrical Technician			
32	Reconfigure experiments	26	01	2.C.23	2.D.24-1	Metal Samples Remover	1255	011.281	Metallurgist Assistant			
		26	01	2.C.24	2.D.19 2.D.24-1	Immiscible Liquid Sample Remover	2316	011.281	Metallurgist Assistant			
	:	27	01	2.C.23	2.D.19 2.D.24-1 2.D.19	Metal Samples Installer	1254	011.281	Metallurgist Assistant			
		27	01	2.C.24	3.I.04-9 2.D.24-1 2.D.19 3.I.04-10	Immiscible Liquid Sample Installer	2317	011.281	Metallurgist Assistant			
REVI	SION NO:	REVIS	ION DAT	I <u> </u>		PREPARED BY: GRH/EMW APP	ROVED	BY: GR	SERIES MS-1-A PA	GE!S-3.2-04-4		

DISC	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	FPE: MS-1 Ma	terials Sciences and Manufacturing in S	ace	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pay		.3	F	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
32	(Continued)	15	01	2.8.06-11	2.D.32 3.I.06-1 2.C.26 2.D.52	Heating/Positioning Coll Control Actuator	1260	003.281	Instrumentation Technician			
•		26	01	2,D.32	2.D.13-1 2.D.13-2 4.D.22-1 3.I.06-1 2.C.26 2.D.52 2.D.13-1	Heating/Positioning Coil Remover	1268	003, 181	Electrical Technician			
		27	01	2.D.32	2.D.13-2 4.D.22-1 2.B.06-11 3.I.06-1 2.C.26 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician			
	·	26 27	01 01	2.D.13-1 2.D.13-1	2.B.06-11 4.D.18 4.D.18 3.I.04	Environmental Chamber Module Remover Environmental Chamber Module Installe	1059 1060	003.181 003.181	Electrical Technician Electrical Technician	-		
		26 27	01 01	2.D.13-2 2.D.13-2	4.D.18 4.D.18	Environmental Chamber Module Remover Environmental Chamber Module Installe	1059 1060	003.181 003.181	Electrical Technician Electrical Technician			
		15	01	2.B.06-1	3.I.04 3.I.04 2.C.23	Computer Control Actuator	0847	003.281	Instrumentation Technician			
		26	01	2.A.17-7	2.C.24 2.C.23 2.C.24 2.D.24-1	Camera Remover	0314	003.181	Electrical Technician			
	·	27	01	2.A.17-7	2.5.24-1 1.G.01-7 2.C.23 2.C.24 2.D.24-1 1.G.01-7	Camera Installer	0039	003.181	Electrical Technician			
REV	ISION NO:	REVIS	SION DA	re:	Ţ,	PREPARED BY: GRH/EMW APP	ROVED	BY: 6	RH SERIES MS-T-A PAG	E MS-3.2-04-		

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pay				EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FUNCTION: 04 - Experiment Setup					
·	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEF	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE			
NO.	DESCRIPTION	ION NO.		PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.			
32	(Continued)	15	01	2.B.06-2	2.C.23 2.C.24	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician				
		15	10	2.8.06-6	2.B.06-1 2.D.13-1 2.D.13-2 3.I.04 2.C.23 2.C.24	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician				
		15	01	2.B.06-9	4.D.13 3.I.04 2.C.23 2.C.24	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician				
		26	01	4.0.13	3.I.04 2.C.23 2.C.24 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician				
		27	01	4.D.13	3.1.04 2.C.23 2.C.24 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician				
	·	15	01	2.8.06-1	2.D.24-1 3.I.04 2.C.23	Furnace Control Actuator	1175	003.281	Instrumentation Technician				
•		26	01	2.0.24-1	2.C.23 2.C.24	Furnace Module Remover	0981	003.181	Electrical Technician				
		27	01	2.0.24-1	2.C.23 2.C.24	Furnace Module Installer	0982	003.181	Electrical Technician				
		26	01	2.0.22	4.D.18 3.I.04 2.C.23 2.C.24	Vibrator Remover	1082	003.181	Electrical Technician				
		27	01	2.D.22	4.D.18 3.I.04 2.C.23 2.C.24 4.D.18	Vibrator Installer	1079	003.181	Electrical Technician				
REV	ISION NO:	REVIS	ION DA	re:	T.	PREPARED BY: GRH/EMW API	PROVED	BY:	GRH SERIES MS-1-A PAG	EMS-3.2-04-6			

DISC	PLINE: MATERIALS SCIENCES AN	ID MANUFA	CTURING]	FPE: MS-1 Mate	rials Sciences and Manufacturing in Sp	ace	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pa	ayload MS	-3	1	EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT CREW OPER. TASK FUNCT. ENVIR.				ENDENCY NO.	TASK - SKILL			REFERENC			
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
32	(Continued)	26	01	2.D.18	3.I.04 2.C.23 2.C.24	Dispersion Control System Remover	2312	003.181	Electrical Technician	-		
		27	01	2.D.18	4.D.18 3.I.04 2.C.23 2.C.24	Dispersion Control System Installer	2311	003.181	Electrical Technician			
٠		15	01	2.8.06-17	4.D.18	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician			
		26	01	2.D.52	4.D.13 3.I.04 2.C.23 2.C.24 2.B.06-17	VHF Power Unit Remover	1094	003.181	Electrical Technician			
		27	01	2.D.52	4.D.13 3.I.04 2.C.23 2.C.24 2.B.06-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician			
-		26	01	2.0.52	3. I.04 2. C.23 2. C.24 2. B.06-17 4. D.13	VHF Power Unit Module Remover	1095	003.181	Electrical Technician			
į		27	01	2.0.52	4.0.18 3.I.04 2.C.23 2.C.24 2.B.06-17 4.D.13	VHF Power Unit Module Installer	1096	003.181	Electrical Technician			
	·	15	01	1.G.02-14		Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician			
REV	ISION NO:	REVIS	ION DA	ΓE:	l r	REPARED BY: GRH/EMW AP	PROVED	BY: GF	SERIES MS-1-A PA	GEMS-3.2-04-7		

EXPERIMENT AREA: Sortie Lab Payload MS-3	DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
NO. DESCRIPTION NO. NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE 32 (Continued) 15 01 2.8.06-13 2.0.21-1 2.0.21-2 3.1.04 2.0.22-1 3.1.0	ENPE	RIMENT AREA: Sortie Lab Pa			F	3.2 Directional Solidification			BASIC FUNCTION: 04 - Experiment Setup				
NO. DESCRIPTION NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE 12 (Continued) 15 01 2.8.06-13 2.0.21-1 2.0.13-2 2.0.21-1 3.1.04 2.0.23 2.0.24-1 3.1.04 2.0.		CREW TASK STATEMENT			TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCI NOTE		
2. 0.21-2 3. 1.04 2. 0.22-2 3. 1.04 2. 0.23-2 2. 0.24-2 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 2. 0.13-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0.24-1 3. 1.04 2. 0.23-2 2. 0. 13-2 2. 0.	NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
2.0.21-1 2.0.21-2 2.0.13-1 2.0.13-2 2.0.13-1 2.0.13-2 2.0.24-1 3.1.04 2.0.23-2 2.0.24-1 3.1.04 2.0.24-1 3.1.04 2.0.24-1 3.1.04 2.0.24-1 3.1.04 2.0.24-1 3.1.04 2.0.24-1 3.1.04 2.0.24-1 3.1.04 2.0.23-2 2.0.24-1 3.1.04 2.0.23-2 2.0.24-2 2.0.2	32	(Continued)	15	01	2.8.06-13	2.D.21-2 3.I.04	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician			
27	•		27	01	2.D.21-1	2.C.24 2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23	Mixing Unit Remover	0994	003.181	Electrical Technician			
27 01 2.0.21-3 2.0.13-2 2.0.13-2 2.0.13-1 2.0.24-1 3.1.04 2.0.23 2.0.24-1 3.1.04 2.0.23 2.0.24-1 3.1.04 2.0.24		·	27	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04	Mixing Unit Remover	0994	003.181	Electrical Technician			
26 01 2.D.21-1 2.D.13-1 2.D.13-2 2.D.24-1 3.1.04 2.C.23 2.C.24 2.D.13-2 2.D.24-1 3.1.04 2.C.23 2.C.24 2.D.13-2 2.D.13-2 2.D.24-1 3.1.04 2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.D.13-1 2.D.13-2 2.D.24-1 3.1.04 2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.D.24-1 3.1.04 2.C.23 2.C.24 2.D.24-1 3.1.04 2.C.23 2.D.24-1 3.D.4			27	01	2.0.21-3	2.C.24 2.D.13-2 2.D.13-2 2.D.24-1 3.I.04	Mixing Unit Remover .	0994	003.181	Electrical Technician			
26 01 2.0.21-2 2.0.13-1 2.0.13-2 2.0.24-1 3.1.04 2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.D.21-3 2.D.13-1 2.D.13-2 2.D.24-1 3.1.04 2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.D.24-1 3.1.04 2.C.23 2.C.24-1 2.D.24-1 3.1.04 2.C.23			26	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23	Mixing Unit Installer	0991	003.181	Electrical Technician			
26 01 2.D.21-3 2.D.13-1 Mixing Unit Installer 0991 003.181 Electrical Technician 2.D.13-2 2.D.24-1 3.1.04 2.C.23		, N	26	01	2.0.21-2	2.0.13-1 2.0.13-2 2.0.24-1 3.1.04 2.C.23	Mixing Unit Installer	0991	003.181	Electrical Technician			
			26	01	2.D.21-3	2.0.13-1 2.0.13-2 2.0.24-1 3.1.04 2.0.23	Mixing Unit Installer	0991	003.181	Electrical Technician			
REVISION NO: REVISION DATE: PREPARED BY: GRH/EMW APPROVED BY: GRH SERIES MS-1-A PAGEMS-	12.17.1	ISION NO	Buus	L	l .	<u> </u>	DREDARED RV. CDH/FMU AT	PROVED	RY: GRH	SEBIEG MC-1-A DA	GEMS-3.2-04-9		

DISCI	PLINE: MATERIALS SCIENCES	AND MANUFAC	TURING		FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie				
EXPE	XPERIMENT AREA: Sortie Lab Payload MS-3					3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)	BASIC FUNCTION: 04 - Experiment Setup						
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC			
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.			
32	(Continued)	26	01	2.A.04-3	2.8.09 3.1.04 1.G.01-7 2.C.23	TV Camera Remover	0661	003.181	Electrical Technician				
		27	01	2.A.04-3	2.C.24 2.B.09 3.I.04 1.G.01-7 2.C.23	TV Camera Installer	0306	003.181	Electrical Technician				
٠	,	15	01	2.8.06-14	3.I.04 2.D.24-1 2.C.23	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician				
		26	01	2.A.43	2.C.24 2.B.06-14 3.I.04 2.D.24-1 2.C.23	Holographic Device Remover	1237	003.181	Electrical Technician				
		27	01	2.A.43	2.C.24 2.B.06-14 3.I.04 2.D.24-1 2.C.23	Holographic Device Installer	1238	003.181	Electrical Technician				
		15	01	2.8.06-3	3.I.04 2.C.23 2.C.24 2.D.18	Slip Cast Injection System Control Actuator	2327	003.281	Instrumentation Technician				
		26	01	2.D.50	2.D.19 2.B.06-33 3.I.04 2.C.23 2.C.24 2.D.18	Slip Cast Injection System Remover	1118	003.181	Electrical Technician				
	·	27	01	2.D.50	2.D.19 2.B.06-33 3.I.04 2.C.23 2.C.24 2.D.18 2.D.19	Slip Cast Injection System Installer	1115	003.181	Electrical Technician				
REV	ISION NO:	REVIS	SION DA	re:		PREPARED BY: GRH/EMW API	ROVED	BY: GRH	SERIES MS-1-A P	AGE MS-3.2-04-			

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in	Space	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	3		EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	task - skill			REFERENCE			
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
35	Calibrate instruments	08 08 08 08	01 01 01 01 01	2.D.27 2.D.52 2.D.32 2.A.43 2.D.18	4.C.01 4.C.01 4.C.01 4.C.01 4.C.01	Materials Analysis Equipment Calibrator VHF Power Unit Calibrator Heating/Positioning Coil Calibrator Holographic Device Calibrator Dispersion Control System Calibrato	1046 1097 1333 1227 2313	710.884 710.884 710.884 710.884 710.884	Calibrator Calibrator Calibrator Calibrator Calibrator Calibrator			
37	Define experiment apparatus configuration	11	01	3.I.04-9 3.I.04-10	2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.B.06-2 4.D.13 2.D.21-1 2.A.43 2.D.21-1 2.D.21-2 2.D.21-3 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18 2.D.10 2.D.20 2.D.32 2.A.17-7 2.A.04-3 2.D.50	Liquid Dispersions Research Evaluator	1353	011.281	Metallurgist Assistant			
REV	ISION NO:	REVIS	SION DA	TE:	T i	PREPARED BY: GRH/EMW A	PPROVED	BY:	GRH SERIES MS-1-A	PAGEMS-3.2-04-1		

DISCI	PLINE: MATERIALS SCIENCES A	TUNAM DK	ACTURIN	G I	FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-3	E	EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)			BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT CREW OPER. TASK D		TASK DEP	ENDENCY NO		rask - skill		PRIMARY OCCUPATIONAL SKILL REF				
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	′	TITLE	NO.	NO.	7	ritle	NOTE NO.
37	(Continued)		01	3.I.04-9 3.I.04-10	2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.B.05-2 4.D.13 2.D.24-1 2.D.21-2 2.D.21-3 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18 2.D.20 2.D.32 2.A.17-7 2.A.04-3 2.D.50	Liquid Dispers	ions Research Plann	1346	011.281	Metallurgist As	ssistant	
REV	ISION NO:	REVIS	SION DAT	re:		PREPARED BY:	GRH/EMW	APPROVED	BY: GR	RH SI	ERIES MS-1-A	PAGEMS-3.2-04-11

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	I	PPE: MS-1 Ma	terials Sciences and Manufacturing in S	pace	MISSION MODE: A - Shuttle Sortie				
EXPE	RIMENT AREA: Sortie Lab Pa		-3	F	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FUNCTION: 04 - Experiment Setup				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	DEPENDENCY NO. TASK - SKILL			PRIMARY OCCUPATIONAL SKILL				
١٥.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	. TITLE	NOTE NO.		
38	Define experiment conditions	13	01	3.1.04	2.C.23 2.C.24 2.B.06-1 2.D.13-1 2.D.13-2 4.D.13 2.D.32 2.D.50 2.D.24-1 2.D.21-1 2.D.21-3 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.15	Liquid Dispersions Research Planner	1346	011.281	Metallurgist Assistant			
50	Install data recording system Check out optical instrumentation and measuring devices	18 22 27 03 03 03 03 14 14 14 14	01 01 01 01 01 01 01 01	4.D.10 4.D.10 4.D.10 2.D.27 2.A.17-7 2.A.04-3 2.A.43 2.D.27 2.A.17-7 2.B.09 2.B.06-14	4.D.02 4.D.20 1.G.01-18 1.G.01-6 2.B.06-1 2.B.06-2 4.D.09 4.D.09 4.D.09 4.D.09 4.C.02 2.A.04-3 4.C.02 2.A.43	Data Recorder Unstower Data Recorder Translocator Data Recorder Installer Materials Analysis Equipment Inspector Camera Inspector TV Camera Inspector Holographic Device Inspector Materials Analysis Equipment Tester Camera Tester TV Camera Tester Holographic Device Tester	1519 1520 1156 2269 0294 0079 2270 1447 1448 0633 1449	722.281 722.281 722.281 722.281 722.281 722.281 722.281 722.281 722.281	Instrumentation Technician General Technical Skill Electrical Technician Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems			
REV	ISION NO:	REVIS	ION DA	ΓE:	1	PREPARED BY: GRH/EMW APP	ROVED	BY: GRH	SERIES MS-1-A PAG	GHS-3.2-04-12		

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie				
ENPE	RIMENT AREA: Sortie Lab Pay	load MS-			EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FUNCTION: 05 - Experiment Shutdown					
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	DEPENDENCY NO. TASK - SKILL				PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE			
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.			
17	Remove materials from mold	26 26	01 01	2.C.23 2.C.24	2.D.19-1 3.I.04-9 2.D.19-1 3.I.04-10	Slip Casting Remover Immiscible System Casting Remover	1358 1362	011.281	Metallurgist Assistant Metallurgist Assistant				
18	Store completed casting	22	01	2.C.23	1.G.01-18 1.G.01-6 1.G.01-2	Slip Casting Translocator	2318	000.000	General Technical Skill				
		22	01	2.C.24	1.G.01-18 1.G.01-6 1.G.01-2	Immiscible System Casting Translocator	2319	000.000	General Technical Skill				
	•	17	01	2.C.23	2.D.25 4.D.20	Slip Casting Stower	1359	003.281	Instrumentation Technician				
		17	01	2.C.24	4.D.02 2.D.25 4.D.20 4.D.02	Immiscible System Casting Stower	1360	003.281	Instrumentation Technician				
33	Clean experiment apparatus	19	01	2.D.13-1	2.C.24 2.C.23 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician				
	!	19	01	2.D.13-2	2.C.23 2.C.24	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician				
		19	01	2.D.24-1	4.D.06 2.C.23 2.C.24	Furnace Cleaner	0984	003.281	Instrumentation Technician				
		19	01	2.D.32	4.D.05 2.C.23 2.C.24	Heating/Positioning Coil Cleaner	1336	003.281	Instrumentation Technician				
	·	19	01	2.D.27	4.D.06 2.C.23 2.C.24	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician				
		19	01	2.D.21-1	2.C.24	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician				
		19	01	2.D.21-2	4.D.06 2.C.24 2.C.23 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician				
REV	ISION NO:	REVIS	SION DA?	л		PREPARED BY: GRH/EMW APP	ROVED	BY:	GRH SERIES MS-1-A PAGEM	·S-3.2-05-1			

EXPERIMENT AREA: Sortic Lab Payload MS-3 Series Ser	DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie	
NO. NO.	EXPE	RIMENT AREA: Sortie Lab Pay	load MS-			EXPERIMENT:	3.2 Directional Solidification		BASIC FU	UNCTION: 05 - Experiment Shutdown	
NO. DESCRIPTION NO. NO. NO. NO. PRIMARY SECONDARY TITLE NO. NO. TITLE NO.		CREW TASK STATEMENT			TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
19	ΧΟ.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	ŅO.	NO.	TITLE	0
19	33	(Continued)	19	01	2.D.21-3	2.C.23	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician	
19			19	01	2.0.18	2.C.24 2.C.23	Dispersion Control System Cleaner	1109	003.281	Instrumentation Technician	
19	•		19	01	2.0.19	2.C.24 2.C.23	Materials Forming Equipment Cleaner	1021	003.281	Instrumentation Technician	
results to ground personnel Saction Sacti			19	01	2.D.50	2.C.23	Slip Cast Injection System Cleaner	1361	003.281	Instrumentation Technician	
44 Develop film; make prints 06 01 4.8.08 01 4.D.19 2.A.27-6 2.A.2	41		05		4. A.02	3. I. 04-10 2. C. 23 2. C. 24 2. D. 13-1 2. D. 13-2 2. D. 24-1 2. D. 32	Radio Communicator	0206	003.187	Radio Engineer	
06 01 4.D.19 2.A.27-6 Film Processor 0328 076.782 Film Processor			05		3.1.04	4.A.02 2.C.23 2.C.24 2.D.13-1 2.D.13-2	Liquid Dispersions Research Coordinator	2320	011.281	Metallurgist Assistant	
REVISION NO: REVISION DATE: PREPARED BY: GRH/EMW APPROVED BY: GRH SERIES MS-1-A PAGEMS-3.2-05-	44	Develop film; make prints	06 06	on				0328 0328	976.782 976.782		MS-3
	REV	ISION NO:	REVIS	SION DA	<u>l</u> re:		PREPARED BY: GRH/EMW AP	PROVED	BY: GI	RH SERIES MS-1-A PAGEN	S-3.2-05-2

DISCI	PLINE: MATERIALS SCIENCĖS AND	MANUFA	CTURING	F	PE: MS-1 Ma	sterials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie	
ENPE	RIMENT AREA: Sortie Lab Pay	yload MS	i-3	F	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NUENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
٪٥.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
4	Thoroughly mix material slip	10	01	2.D.21-4	3.I.04-9 2.C.23 2.D.21-1 2.D.21-2	Mixing Equipment Controller	2321	011.281	Metallurgist Assistant	
5	Force slip into mold	27	01	2.C.23	2.D.50	Slip Materials Installer	2322	011.281	Metallurgist Assistant	
	,	10	01	2.8.06-33	3.I.04-9 2.D.50 2.C.23 2.D.19	Slip Cast Injection System Controller	1363	011.281	Metallurgist Assistant	
6	Determine suitable casting	13	01	3.1.04-9	2.C.23 2.D.19-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant	
		13	01	3.1.04-10	2.C.24 2.D.19-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant	
7	Open casting mold	21	01	2.D.19-1	2.C.23 2.C.24 4.D.18	Casting Mold Disassembler	2323	011.281	Metallurgist Assistant	
8	Strain (drain) excess slip from mold	26	01	2.0.23	2.D.19-1 4.D.06 2.G.05	Slip Materials Remover	1351	011.281	Metallurgist Assistant	
9	Dry the completed cast	27	01	2.D.19-1	2.C.23 4.D.22-1	Casting Mold Installer	2324	011.281	Metallurgist Assistant	
10	Determine suitable drying time	13	01	3.1.04-9	2.C.23 4.D.22-1 2.D.19-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant	
12	Insert immiscible system mixtures into mold	27	01	2.C.24	2.D.19-1 4.D.22-1	Immiscible Liquid Sample Installer	2317	011.281	Métallurgist Assistant	
REV	ISION NO:	REVIS	ION DAT	re:	P	PREPARED BY: GRH APPE	ROVED	BY:	GRH SERIES MS-1-A PAGE	4S-3.2-06-1

	IPLINE: MATERIALS SCIENCES AND	PRINTER	CIUKING	F	PE: MS-I Ma	terials Sciences and Manufacturing in Sp	ace	MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	3	E	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	NCTION: 06 - Experiment Conduct	·
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
13	Heat mold to requisite sample melting temperature	27 11	01 01 01	2.D.19-1 3.I.04-10 3.I.04-10	2.C.24 2.D.24-1 2.D.24-1 2.C.24 2.D.24-1	Casting Mold Installer Liquid Dispersions Research Evaluator Liquid Dispersions Research Planner	2324 1353 1346	011.281 011.281 011.281	Metallurgist Assistant Metallurgist Assistant Metallurgist Assistant	
		15	01	2.8.06-10	2.C.24 2.D.24-1 2.C.24 2.D.19-1 3.I.04-10	Furnace Control Actuator	1175	003.281	Instrumentation Technician	
14	Disperse liquified materials	15	01	2.8.06-12	2.D.18 2.C.24 2.D.24-1	Dispersion Control System Control Actuator	1176	011.281	Metallurgist Assistant	
15	Determine dispersion completion	11	01 01	3.I.04-10 3.I.04-10	2.D.18	Liquid Dispersion Research Evaluator Liquid Dispersion Research Status Determiner	1353 2 3 25	011.281 011.281	Metallurgist Assistant Metallurgist Assistant	
16	Cool materials to room temperature	15	01	2.B.06-6	2.D.13-1 2.D.13-2 2.D.24-1 2.C.24	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
36	Schedule experiment runs	13	01	3.I.04-9 3.I.04-10	2.8.06-1 2.8.06-2 2.C.23 6.A.02 2.8.06-1 2.8.06-2 2.C.24 6.A.02	Liquid Dispersion Research Planner Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant Metallurgist Assistant	
1: E	VISION NO:	REVIS	SION DAT	re:		PREPARED BY: GRH/EMW APPR	ROVED	BY: GR	H SERIES MS-1-A PAGE	S-3.2-06-2

	CIPLINE: MATERIALS SCIENCES A					erials Sciences and Manufacturing in Sp		 	IODE: A - Shuttle Sortie	
(XP)	ERIMENT AREA: Sortie Lab Pa	yload MS	-3	1	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	NCTION: 06 - Experiment Condu	ct
	CREW TASK STATEMENT	CREW FUNCT	OPER.	TASK DEP	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
39	Monitor experiment	01	01	3.I.04-9	2.C.23 2.B.06-2	Liquid Dispersion Research Monitor	2326	011.281	Metallurgist Assistant	
	performance	01	01	3.1.04-10		Liquid Dispersion Research Monitor	2326	011.281	Metallurgist Assistant	
	1	01	01	2.B.06-6	2.D.13-1	Environmental Chamber Operation	1141	003.281	Instrumentation Technician	
		01	01	2.8.06-7	2.D.13-2 2.D.15 2.B.06-27	Monitor Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician	
		01	01	2.B.06-9	2.D.34 4.D.13 2.B.06-17	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician	
		01	01	2.B.06-10	2.D.13-1	Furnace Operation Monitor	0985	003.281	Instrumentation Technician	
	·	01	01	2.8.06-17	2.D.13-2 2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician	
		10 10	01 01	2.8.06-2 1.G.02-13	2.B.06-1	Computer Operation Monitor Accident Control System Operation Monitor	1055 2264	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		01	01	2.B.06	2.0.32 4.0.14 1.G.02-14	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician	
		01	01	2.8.06-13		Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician	
		01 01	01 01	2:B.06-16 1.G.02-14	2.D.22	Vibrator Operation Monitor Heat Rejection System Operation Monitor	1086 1146	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		01	01	2.8.06-12		Dispersion Control System Operation Monitor	1110	003.281	Instrumentation Technician	
		01	01	2.8.06-14	2.A.43 2.C.23 2.C.24	Holographic Device Operation Monitor	1228	003.281	Instrumentation Technician	
		01	01	2.8.06-33		Slip Cast Injection System Operation Monitor	1122	003.281	Instrumentation Technician	
110	EVISION NO:	PEVI	SION DA	TF.		PREPARED BY: GRH/EMW AP	PROVED	BY: GRH	SERIES MS-1-A	PAGEIS-3.2-05-

DISCI	PLINE: MATERIALS SCIENCES AND	D MANUFA	CTURING	F	PE: MS-1 Mat	erials Sciences and Manufacturing in S	pace	MISSION 1	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	.3	F	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	NCTION: 06 - Experiment Conduc	t
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
١٥.	DESCRIPTION	×0.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
40	Evaluate experiment results	11 11	01	3. I. 04-9 3. I. 04-10	2.D.27	Liquid Dispersion Research Evaluator Liquid Dispersion Research Evaluator	1353		Metallurgist Assistant Metallurgist Assistant	
47	Operate measuring, recording, and transmission system and equipment	15 15 15 05 15	01 01 01 01 01	2.A.17-7 2.B.09 2.B.06-14 4.A.02 1.G.02-12	2.C.23 2.C.24 3.I.04-9 3.I.04-10	Camera Control Actuator TV Camera Control Actuator Holographic Device Control Actuator Radio Communicator Telemetry Control Actuator	0245 0899 1229 0206 0662	003.281 003.281 003.281 003.187 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Radio Engineer Instrumentation Technician	
	ISION NO:	BENT	SION DA	PE.		REPARED BY: GRH/EMW APP	ROVED	DV.	SRH SERIES MS-1-A P.	AGE MS-3.2-06

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	PE: MS-1 Ma	terials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	-3	E	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC FU	NCTION: 10 - Unscheduled Maint	enance
	CREW TASK STATEMENT	CREW FUNCT	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-1 2.D.13-2	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic	,
		28 28 07	01 01 01	2.D.13-1 2.D.13-2 2.B.06-5	4.C.02 4.D.18 4.D.18 4.D.22-1 4.C.02	Environmental Chamber Repairer Environmental Chamber Repairer General Purpose Lab Bench Fault Identifier	1065 1065 2265	828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic	
		07	01	4.D.22-1 2.B.06-2	4.D.18 4.C.02	General Purpose Lab Bench Repairer Instrumentation and Control Center Fault Identifier	2266 2250	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28	01	2.8.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic	
		07	01	2.B.06-9	4.D.13 4.C.02	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic	
		28	10	4.D.13	2.B.06-17 4.D.18	Power Conditioning/Distribution	1139	828.281	Electronics Mechanic	
		07	01	2.8.06-10	2.D.24-1 4.C.02	System Repairer Furnace Fault Identifier	0989	828.281	Electronics Mechanic	
		28 07	01 01	2.D.24-1 2.B.06-13	4.0.18 2.0.21-1 2.0.21-2 2.0.21-3	Furnace Repairer Mixing Unit Fault Identifier	0988 1003	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 28 28 07	01 01 01 01	2.D.21-1 2.D.21-2 2.D.21-3 2.B.06-16	4.C.02 4.D.18 4.D.18 4.D.18 2.D.22	Mixing Unit Repairer Mixing Unit Repairer Mixing Unit Repairer Vibrator Fault Identifier	1002 1002 1002 1090	828.281 828.281 828.281 823.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
		28 07	01 01	2.D.22 2.B.06-17	4.C.02 4.D.18 2.D.52 4.C.02	Vibrator Repairer VHF Power Unit Fault Identifier	1089 1103	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 07	01 01	2.D.52 2.B.06-2	2.B.06-9 4.D.18 2.B.06-1 4.C.02	VHF Power Unit Repairer Computer Fault Identifier	1102 0523	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 07	01 01	2.8.06-1 1.G.02-14	4.D.18 4.D.14	Computer Repairer Heat Rejection System Fault Identifier	0540 1150	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		28 07	01 01	4.D.14 1.G.02-13	4.C.02 4.D.18 4.E.04-1 4.C.02	Heat Rejection System Repairer Accident Control System Fault Identifier	1149 2267	828.281 828.281	Electronics Mechanic Electronics Mechanic	
REV	ISION NO:	REVIS	ION DAT	re:	Ī	PREPARED BY: GRH/EMW APPR	OVED	BY: GRI	SERIES MS-1-A P	AGEMS-3.2-10-1

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	PE: MS-1 Mat	erials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie	
EXP	ERIMENT AREA: Sortie Lab Pa	yload MS	i-3	E	EXPERIMENT:	3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)		BASIC F	UNCTION: 10 - Unscheduled Mai	ntenance
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
48	(Continued)	28 07 28 07 28 07 28 07 28 07	01 01 01 01 01 01 01 01	4.E.04-1 2.B.06-12 2.D.18 2.B.06-11 2.D.32 2.A.17-7 2.A.17-7 2.B.09 2.A.04-3 2.B.06-14 2.A.43 2.B.06-33 2.D.50	4.D.18 2.D.18 4.C.02 4.D.18 2.D.32 4.C.02 4.D.18 4.C.02 4.C.07 4.D.18 2.A.04-3 4.C.02 4.C.07 4.D.18 2.A.43 4.C.02 4.C.01 4.C.01 4.C.01	Accident Control System Repairer Dispersion Control System Fault Identifier Dispersion Control System Repairer Heating/Positioning Coils Fault Identifier Heating/Positioning Coil Repairer Camera Fault Identifier Camera Repairer TV Camera Repairer Holographic Device Fault Identifier Holographic Device Repairer Slip Cast Injection System Fault Identifier Slip Cast Injection System Repairer	2268 1114 1113 1264 1263 0886 1195 0689 0690 1233	828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	NO.
RE	VISION NO:	REVIS	SION DA	ΓE:	1	PREPARED BY: GRH/EMW AP	PROVED	BY:	GRH SERIES MS-1-A F	PAGEMS-3.2-10-2

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-4

EXPERIMENT: 4.0 SMALL AND LOW TEMPERATURE EXPERIMENTS

4.1 CONVECTION OF FLUIDS

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	PE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION :	MODE: A - Shuttle Sortie	,
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	4	F	EXPERIMENT:	4.0 Small and Low Temperature Experts. Convection of Fluids	riments	BASIC FU	NCTION: 04 - Experiment Setu	P
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NUENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC NOTE
ХО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE _	NO.	NO.	TITLE	NO.
3	Program experiment control equipment	15 15	01 01	2.8.06-4 2.8.06-6	2.D.13-3 3.I.08 2.D.13-1 3.I.08	Environmental Chamber Control Actuator Environmental Chamber Control Actuator	1173 1173	003.281	Instrumentation Technician Instrumentation Technician	
	: 	15 15	01 01	2.8.06-5 2.8.06-7	4.D.22-1 3.I.08 2.D.15 3.I.08	General Purpose Lab Bench Control Actuator Atmosphere Supply/Control System Control Actuator	2260 1174	003.281	Instrumentation Technician Instrumentation Technician	
		15 15	01 01	2.B.06-9 2.B.06-10	2.C.27 4.D.13 3.I.08 2.D.24-1 3.I.08	Power Conditioning/Distribution System Control Actuator Furnace Control Actuator	1179 1175	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		15	01	2.8.06-29	2.C.27 2.A.30-1 3.I.08 2.C.27	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician	
		15 15	01	1.G.02-14 1.G.02-13	3.1.08	Heat Rejection System Control Actuator Accident Control System Control Actuator	2261	003.281	Instrumentation Technician Instrumentation Technician	
		15	01	2.8.06-13	2.C.27 2.D.21-1 2.D.21-2 3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician	
		15	01	2.B.06-15	2.D.21-3 3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician	
		15	01	2.B.06-16 2.B.06-18	3.I.08 2.C.27	Vibrator Control Actuator Heating/Cooling Device Control Actuator	1182	003.281	Instrumentation Technician Instrumentation Technician	
					· .					
REV	ISION NO:	REVIS	SION DA'	<u>"</u> ГЕ:		PREPARED BY: GRH/EMW A	PPROVED	BY: G	RH SERIES MS-1-A	PAGE MS-4.1-04-

	LINE: MATERIALS SCIENCES AN					aterials Sciences and Manufacturing in		 	NODE: A - Shuttle Sortie	
XPER	IMENT AREA: Sortie Lab Pay	load MS-	4	\	EXPERIMENT:	4.0 Small and Low Temperature Exper 4.1 Convection of Fluids	iments	BASIC FU	NCTION: 04 - Experiment Setup	
С	REW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
4 P	repare fluid samples	13	10	3.1.08	2.C.27 2.D.21-1 2.D.21-2 2.D.21-3	Fluid Convection Research Planner	1648	023.081 022.081	Physicist, Heat Chemist, Physical	
		18	01	2.C.27	2.D.24-1 4.D.20 2.D.25	Fluid Samples Unstower	1652	003.281	Instrumentation Technician	
	•	22	01	2.C.27	1.G.01-18 1.G.01-6	Fluid Samples Translocator	1651	000.000	General Technical Skill	
		27	01	2.C.27	1.G.01-2 2.D.21-1 2.D.21-2 2.D.21-3 3.I.08	Fluid Samples Installer	1650	003.281	Instrumentation Technician	
	•	10	01	2.C.27	2.D.19 3.1.08 2.D.21-1 2.D.21-2 2.D.21-3	Fluid Sample Mixing Controller	1647	023.081 022.081	Physicist, Heat Chemist, Physical	
31	Set up experiment apparatus	18	01	2.D.13-3	4.D.02 2.B.06-4	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
}		18	01	2.D.13-1	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
		18	01	2.D.13-2	4.D.02	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
- {		18	01	2.8.06-2	2.B.06-6 4.D.02	Instrumentation and Control Center	2240	003.281	Instrumentation Technician	
		18	01	2.0.15	4.0.02	Unstower Atmosphere Supply and Control	1162	003.281	Instrumentation Technician	
Ì		18	01	4.D.13	2.B.06-7 4.D.02	System Unstower Power Conditioning/Distribution	1153	003.281	Instrumentation Technician	
1		18	01	2.D.24-1	2.B.06-9 4.D.02	System Unstower Furnace Unstower	0980	003.281	Instrumentation Technician	
		18	01	4.0.14	2.B.06-10 1.G.02-14	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician	
	٠	18 18	01 01	4.D.22-1 4.B.01-1	4.D.02 4.D.02 4.D.02 1.G.02-13	General Purpose Lab Bench Unstower Accident Control System Unstower	2252 2253	003.281 003.281	Instrumentation Technician Instrumentation Technician	
REVIS	SION NO:	REVIS	ION DA	TE:	ļ ī	PREPARED BY: GRH/EMW AF	PROVED	BY: G	RH SERIES MS-1-A	PAGEMS-4.1-04-

DISCI	PLINE: MATERIALS SCIENCES AN	ND MANUFAC	TURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab É	Payload MS	-4		EXPERIMENT:	4.0 Small and Low Temperature Experim 4.1 Convection of Fluids	ents	BASIC FU	UNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL	===		PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
31	(Continued)	18	01	2.0.21-1	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		18	01	2.0.21-2	4.D.02	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
Į		18	01	2.0.21-3	4.0.20 4.0.02 4.0.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
•	:	22	01	2.D.21	1.G.01-18 1.G.01-6 1.G.01-2	Mixing Unit Translocator	0993	000.000	General Technical Skill	
·		27	01	2.D.21-1	2.B.06-13 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	
		27	01	2.0.21-2	2.8.05-13 3.1.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	
		27	01	2.D.21-3	2.8.06-15 3.1.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	
		18	01	2.0.22	4.D.02 4.D.20	Vibrator Unstower	1080	003.281	Instrumentation Technician	
		22	01	2.D.22	1.G.01-18 1.G.01-06 1.G.01-02	Vibrator Translocator	1081	000.000	General Technical Skill	
		27	10	2.D.22	2.B.06-16 3.I.08	Vibrator Installer	1079	003.181	Electrical Technician	
		18	01	2.D.18	4.D.20 4.D.02	Dispersion Control System Unstower	1105	003.281	Instrumentation Technician	
i		22	01	2.0.18	1.G.01-18 1.G.01-06 1.G.01-02	Dispersion Control System Translocator	2310	000.000	General Technical Skill	
		27	01	2.D.18	2.B.06-12 2.D.19 2.0.24-1 3.I.08	Dispersion Control System Installer	2311	003.181	Electrical Technician	
		18	01	2.0.19	2.C.27 4.D.20	Materials Forming Equipment Unstower	1017	003.281	Instrumentation Technician	
		22	01	2.D.19	4.D.02 1.G.01-18 1.G.01-06 1.G.01-02	Materials forming Equipment Translocator	1018	000.000	General Technical Skill	
REV	ISION NO:	REVIS	ION DA	re:		REPARED BY: GRH/EMW APPR	ROVED	BY:	GRH SERIES MS-1-A	PAGE MS-4.1-04-

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	ACTURING		FPE: MS-1 M	aterials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-4		EXPERIMENT:	4.0 Small and Low Temperature Experim 4.1 Convection of Fluids	ents	BASIC FU	UNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
ХO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
31	(Continued)	27	01	2.D.19	2.D.24-1 3.I.08 2.C.27	Materials Forming Equipment Installer	1016	003.181	Electrical Technician	
		18	01	2.A.17-7	2.D.18 4.D.20 4.D.02	Camera Unstower	0292	003.281	Instrumentation Technician	
		22	01	2.A.17-7	1.G.01-18 1.G.01-06	Camera Translocator	1226	000.000	General Technical Skill	
	; ;	27	01	2.A.17-7	1.G.01-02 3.I.08 2.C.27 2.D.24-1 1.G.01-7	Camera Installer	0039	003.181	Electrical Technician	
	,	18	10	2.A.04-3		TV Camera Unstower	0054	003.281	Instrumentation Technician	
		22	01	2.A.04-3		TV Camera Translocator	0026	000.000	General Technical Skill	
		27	01	2.A.04-3	1.G.01-6	TV Camera Installer	0306	003.281	Instrumentation Technician	
		18	01	2.A.30-1	2.D.24-1 4.D.02	Calorimeter Unstower	1482	003.281	Instrumentation Technician	
}		22	01	2.A.30-1	4.0.20 1.G.01-18 1.G.01-2	Calorimeter Translocator	1481	000.000	General Technical Skill	
		27	01	2.A.30-1	1.G.01-6 2.B.06-29 2.D.13-1 2.D.13-2	Calorimeter Installer	1480	003.181	Electrical Technician	
l		18	01	2.D.56	2.D.13-3 4.D.02	Heating/Cooling Device Unstower	1253	003.281	Instrumentation Technician	
		22	01	2.D.56	4.D.20 1.G.01-18 1.G.01-2	Heating/Cooling Device Translocator	1252	000.000	General Technical Skill	
		27	01	2.0.56	1.G.01-6 2.B.06-18 2.A.18	Heating/Cooling Device Installer	1251	003.181	Electrical Technician	
REV	ISION NO:	REVIS	SION DA	re.		PREPARED BY: GRH/EMW APPR	ROVED	BY:	GRH SERIES MS-1-A PAGE	EMS-4.1-04-4

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing	in Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	-4		EXPERIMENT:	4.0 Small and Low Temperature Ex 4.1 Convection of Fluids	periments	BASIC FL	UNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
٪Ο.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
31	(Continued)	18 22 27	01 01 01	2.A.39-1 2.A.39-1 2.A.39-1	4.D.02 4.D.20 1.G.01-18 1.G.01-2 1.G.01-6 2.B.06-8 2.D.13-1	Interferometer Unstower Interferometer Translocator Interferometer Installer	1602 1603 1601	003.281 000.000 003.181	Instrumentation Technician General Technical Skill Electrical Technician	
32	Reconfigure experiments	26 27	01 01	2.C.27 2.C.27	2.D.13-2 2.D.13-3 2.D.24-1 2.D.19 2.D.24-1 2.D.19 3.I.08	Fluid Samples Remover Fluid Samples Installer	1653	003.281	Instrumentation Technician Instrumentation Technician	
		26 27 26	01 01 01	2.D.13-3 2.D.13-3 2.D.13-1	4.D.18 4.D.18 3.I.08 4.D.18	Environmental Chamber Module Remover Environmental Chamber Module Installer Environmental Chamber Module Remover	1059 1060 1059	003.181 003.181 003.181	Electrical Technician Electrical Technician Electrical Technician	
		27 26 27	01 01 01	2.D.13-1 2.D.13-2 2.D.13-2	4.D.18 3.I.08 4.D.18 4.D.18 3.I.08	Environmental Chamber Module Installer Environmental Chamber Module Remover Environmental Chamber Module Installer	1060 1059 1060	003.181 003.181 003.181	Electrical Technician Electrical Technician Electrical Technician	
		26 27	01 01	2.A.17-7 2.A.17-7	2.C.27 2.D.24-1 1.G.01-7 2.C.27 2.D.24-1 1.G.01-7	Camera Remover Camera Installer	0314	003.181	Electrical Technician Electrical Technician	
		26	01	2.A.04-3 2.A.04-3	2.B.09 3.I.04 1.G.01-7 2.C.27 2.B.09 3.I.04 1.G.01-7 2.C.27	TV Camera Remover	0306	003.181	Electrical Technician Electrical Technician	
REV	ISION NO:	REVIS	ION DAT	Œ:	I	REPARED BY: GRH/EMW	APPROVED	BY: .	GRH SERIES MS-1-A F	PAGE MS-4.1-04-

DISCI	PLINE: MATERIALS SCIENCES	AND MANUF	ACTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in .	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab	Payload M	S-4		EXPERIMENT:	4.0 Small and Low Temperature Exper 4.1 Convection of Fluids	iments	BASIC FU	JNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
32	(Continued)	15	01	2.B.06-2	3.I.04 2.C.27	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician	
	r	15	01	2.B.06-6	2.B.06-1 2.D.13-1 2.D.13-2 3.I.08 2.C.27	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
:		15	01	2.B.06-9	4.D.13 3.1.08 2.C.27	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
		26	01	4.D.13	3. I.08 2. C.27 4. D.18	Power Conditioning/Distribution System Module Remover	1134	003.281	Instrumentation Technician	
		27	01	4.D.13	3.1.08 2.C.27 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.281	Instrumentation Technician	
		15	01	2.8.06-10		Furnace Control Actuator	1175	003.281	Instrumentation Technician	
		26	01	2.D.24-1	3.1.08 2.C.27 4.D.18	Furnace Module Remover	0981	003.181	Electrical Technician	
		27	01	2.D.24-1	3.1.08 2.C.27 4.D.18	Furnace Module Installer	0982	003.181	Electrical Technician	
		26	01	2.0.22	3.1.08 2.C.27 4.D.18	Vibrator Remover	1082	003.181	Electrical Technician	
		27	01	2.0.22	3.1.08 2.C.27 4.D.18	Vibrator Installer	1079	003.181	Electrical Technician	
		26	01	2.D.18	3.1.08 2.C.27	Dispersion Control System Remover	2312	003.181	Electrical Technician	
		27	01	2.D.18	4.D.18 3.I.08 2.C.27 4.D.18	Dispersion Control System Installer	2311	003.181	Electrical Technician	
DEV.	ISION NO:	REVIS	ION DAT	rr.		PREPARED BY: GRH/EMW AP	PROVED	BY:	GRH SERIES MS-1-A P	AGEMS-4.1-04-6

DISC	IPLINE: MAYERIALS SCIENCES A	ND MANUF	ACTURING	1	FPE: MS-1 M	aterials Sciences and Manufacturing in S	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	-4	1	EXPERIMENT:	4.0 Small and Low Temperature Experim 4.1 Convection of Fluids	nents	BASIC FU	UNCTION: 04 - Experiment Setup	
-	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
32	(Continued)	15	01	2.B.06-4	2.0.13-3 3.1.08 2.C.27	Environmental Chamber Control Actuator	r 1173	003.281	Instrumentation Technician	
		15	01	1.G.02-14	4.D.14 3.I.08 2.C.27 2.D.13-1 2.D.13-2 2.D.24-1	Heat Rejection System Control Actuator	r 1184	003.281	Instrumentation Technician	
; ;		15	01	2.B.06-13	2.D.21-1 2.D.21-2 3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician	
		15	01	2.B.06-15	2.D.21-3 3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician	
		27	01	2.0.21-1	2.0.13-1 2.0.13-2 2.0.13-3 2.0.24-1 3.1.08 2.0.27	Mixing Unit Remover	0994	003.181	Electrical Technician 4	
		27	10	2.D.21-2	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Remover	0994	003.181	Electrical Technician	
		27	01	2.0.21-3	2.0.13-1 2.0.13-2 2.0.13-3 2.0.24-1 3.I.08 2.C.27	Mixing Unit Remover	0994	003.181	Electrical Technician	
		26	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	
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DISC	PLINE: MATERIALS SCIENCES A	ND MANUF/	ACTURI:/IG	i	FPE: MS-1 Ma	terials Sciences and Manufacturing in S	pace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS-	-4		EXPERIMENT:	4.0 Small and Low Temperature Experi 4.1 Convection of Fluids	ments	BASIC FU	INCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
32	(Continued)	26	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1	Mixing Unit Installer	0991	003.181	Electrical Technician	-
		26	01	2.D.21-3	3.I.08 2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08	Mixing Unit Installer	0991	003.181	Electrical Technician	
		15	01	2.8.06-7	2.C.27 2.D.15 3.I.08	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician	
		. 15	01	2.B.06-29	2.C.27 2.A.30-1 3.I.08 2.C.27	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician	
		26	01	2.A.30-1	2.B.06-29 2.D.13-1 2.D.13-2 2.D.13-3 2.C.27	Calorimeter Remover	1479	003.181	Electrical Technician	
•		27	01	2.A.30-1	3.I.08 2.B.06-29 2.D.13-1 2.D.13-2 2.D.13-3 2.C.27	Calorimeter Installer	1480	003.181	Electrical Technician	
		15	01	2.B.06-18	2.A.18 3.I.08	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician	
		26	01	2.D.56	2.C.27 2.A.18 3.I.08 2.C.27	Heating/Cooling Device Remover	1250	003.181	Electrical Technician	
<u> </u> 		27	01	2.0.56	2.C.27 2.A.18 3.I.08 2.C.27	Heating/Cooling Device Installer	1251	003.181	Electrical Technician	
PEL	TISION NO:	REVI	SION DA	TF:	<u> </u>	PREPARED BY: GRH/EMW API	PROVED	RV.	GRH SERIES MS-1-A PA	GE MS-4.1-04-8

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NO. DESCRIPTION NO. NO. PRIMARY SECONDARY TITLE NO. NO. NO. TITLE	DISCIPL	LINE: MATERIALS SCIENCES	AND MANUF	CTURING		FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
NO. DESCRIPTION NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. TITLE	EXPERIM	MENT AREA: Sortie Lab	Payload MS	5-4		EXPERIMENT:	4.0 Small and Low Temperature Expe 4.1 Convection of Fluids	riments	BASIC F	JNCTION: 04 - Experiment Setu	P
NO. DESCRIPTION NO. PRIMARY SECONDARY TITLE NO. NO. TITLE	CR	REW TASK STATEMENT	н		TASK DEP	ENDENCY NO.	Task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENCE
26	NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
26	32 (0	Continued)	15	01	2.B.06-8	3.1.08	Interferometer Control Actuator	1616	003.281	Instrumentation Technician	
27			26	01	2.A.39-1	2.8.06-8 2.D.13-1 2.D.13-2 2.D.13-3	Interferometer Remover	1604	003.181	Electrical Technician	
08			27	01	2.A.39-1	2.8.05-8 2.D.13-1 2.D.13-2 2.D.13-3 3.I.08	Interferometer Installer	1601	003.181	Electrical Technician	
08	35 Ca	alibrate instruments	. 08	01	2.0.27	4.C.01	Materials Analysis Equipment	1046	710.881	Calibrator	
Configuration			08	01	2.A.30-1	4.C.01	Dispersion Control System Calibrato Calorimeter Calibrator	0380	710.881	Calibrator	
(Continued on following page)	37 Dec.	efine apparatus onfiguration	11	01	3.1.08	2.D.13-1 2.D.13-2 2.D.13-3 4.D.22-1 2.D.15 4.D.13 2.D.18 2.A.17-7 2.A.04-3 2.A.30-1 2.D.21-1 2.D.21-2 2.D.21-3 4.E.04-1 2.D.22 4.D.14		1649		Physicist, Heat Chemist, Physical	
	REVISI	ION NO:	REVIS	SION DA'	л ГЕ:		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	PPROVED	BY:	CDH SERIES MS_1_A	PAGEMS-4.1-04-9

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUF	ACTURIN	G 1	FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	· 4 ·		EXPERIMENT:	4.0 Small and Low Temperature Expe 4.1 Convection of Fluids	riments	BASIC FU	JNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
32	(Continued)	13	01	(Continued	from previou 4.8.08 2.0.19 2.8.06-2 2.0.24-1 2.0.56 2.A.18 2.A.39-1 2.0.13-3 4.0.22-1 2.0.15 4.0.13 2.0.18 2.A.17-7 2.A.04-3 2.A.30-1 2.D.21-2 2.0.21-3 4.E.04-1 2.D.22 4.D.14 4.8.08 2.D.19 2.8.06-2 2.0.24-1 2.0.56 2.A.18 2.A.39-1	Fluid Convection Research Planner	1648	023.081	Physicist, Heat Chemist, Physical	
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: GRH/EMW A	PPROVED	BY: GRI	SERIES MS-1-A	PAGE MS-4.1-04-10

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FFE: MS-1 Mat	terials Sciences and Manufacturing in Sp	oace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Ray	load MS-	4		EXPERIMENT:	4.0 Small and Low Temperature Experim 4.1 Convection of Fluids	ments	BASIC FU	JNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
38	Define experiment conditions	13	01	3.1.08	2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 4.D.22-1 2.D.15 4.D.13 2.D.18 2.A.17-7 2.A.04-3 2.A.30-1 2.D.21-2 2.D.21-2 2.D.21-3 4.E.04-1 2.D.22 4.D.14 4.B.08 2.D.19 2.B.06-2 2.D.24-1 2.D.56 2.A.18 2.A.39-1	Fluid Convection Research Planner	1648	023.081 022.081	Physicist, Heat Chemist, Physical	
46	Install data recording systems	18 22 27	01	4.D.10 4.D.10 4.D.10	4.D.02 4.D.20 1.G.01-18 1.G.01-2 1.G.01-6 2.B.06-2	Data Recorder Unstower Data Recorder Translocator Data Recorder Installer	1519 1520 1156	003.281	Instrumentation Technician General Technical Skill Electrical Technician	
50	Checkout optical instrumentation and measuring devices	03 03 03 03 14 14	01 01 01 01 01 01	2.D.27 2.A.17-7 2.A.04-3 2.A.39-1 2.D.27 2.A.17-7	4.D.09 4.D.09 4.C.02	Materials Analysis Equipment Inspector Camera Inspector TV Camera Inspector Interferometer Inspector Materials Analysis Equipment Tester Camera Tester	2269 0294 0079 2243 1447 1448	722.281 722.281 722.281 722.281 003.181 003.181	Inspector, Systems Inspector, Systems Inspector, Systems Inspector, Systems Electrical Technician Electrical Technician	
REV	ISION NO:	REVIS	SION DAT	re:	P	REPARED BY: GRH/EMW APP	ROVED	BY:	GRH SERIES MS-1-A	PAGEMS-4.1-04-11

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	I	PPE: MS-1 Mat	erials Sciences and Manufacturing	in Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	1	I	EXPERIMENT:	4.0 Small and Low Temperature Ex 4.1 Convection of Fluids	operiments	BASIC FU	INCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
50	(Continued)	14 14	01 01	2.B.09 2.B.06-8	2.A.04-3 4.C.02 2.A.29-1	TV Camera Tester Interferometer Tester	0633 1606	003.181 003.181	Electrical Technician Electrical Technician	
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			SION DA			PREPARED BY: GRH/EMW	APPROVED	BY: GR	SERIESMS-1-A	PAGE MS-4.1-04-12

DISC	PLINE: MATERIALS SCIENCES AN	D MANUF	ACTURIN3		FPE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	/load MS-	-4		EXPERIMENT:	4.0 Small and Low Temperature Experi 4.1 Convection of Fluids	ments	BASIC FU	ONCTION: 05 - Experiment Shutdown	
	CREW TASK STATEMENT	CREW	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
33	Clean experiment apparatus	19 19 19 19 19 19 19 19	01 01 01 01 01 01 01 01	2.D.13-1 2.D.13-2 2.D.24-1 2.D.27 2.D.21-1 2.D.21-2 2.D.21-3 2.D.18 2.D.19 2.D.13-3 2.A.30-1	4.0.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06 2.C.27 4.D.06	Environmental Chamber Cleaner Environmental Chamber Cleaner Furnace Cleaner Materials Analysis Equipment Cleaner Mixing Unit Cleaner Mixing Unit Cleaner Mixing Unit Cleaner Dispersion Control System Cleaner Materials Forming Equipment Cleaner Environmental Chamber Cleaner Calorimeter Cleaner	1048 0998 0998	003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
41	Communicate experiment results to ground personnel	05	01	4.A.02 3.I.08	2.C.27 3.I.08 2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 2.A.39-1 2.D.18 4.A.02 2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 2.A.18 2.A.29-1	Radio Communicator Fluid Convection Research Coordinator	0206	003.187	Radio Engineer Physicist, Heat Chemist, Physical	
REV	USION NO:	REVI	SION DA	re:	<u> </u>	PREPARED BY: GRH/EMW APP	ROVED	BY: G	RH SERIES MS-1-A PAGE	GEMS-4.1-05-1

DISC	IPLINE: MATERIALS SCIENCES AND	MANUFACTU	JRING	FPE: MS-1 M	iterials Sciences and Manufacturing	g in Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	ERIMENT AREA: Sortie Lab Pay	load MS-4		EXPERIMENT:	4.0 Small and Low Temperature E. 4.1 Convection of Fluids	xperiments	BASIC FU	JNCTION: 05 - Experiment Shutdow	n
	CREW TASK STATEMENT		PER. TASK DEF	PENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION		NO. PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
44	Develop film; make prints		01 4.B.08 01 4.D.19	2.A.27-6 2.A.27-6	Film Processor Film Processor	0328 0328	976.782 976.782	Film Processor Film Processor	MS-3
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REV	VISION NO:	REVISIO	N DATE:	1	PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A PA	GEMS-4.1-05-2

DISCI	PLINE: MATERIALS SCIENCES AF	ND MANUF	ACTURING	;	FPE: MS-1 Ma	aterials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	yload MS	-4	1	EXPERIMENT:	4.0 Small and Low Temperature Experience Convection of Fluids	ments	BASIC FU	JNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	task - skill			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
2	Monitor experiment conduct	01	01	3.1.08	2.C.27 2.B.05-2	Fluid Convection Research Monitor	2329	023.081	Physicist, Heat Chemist, Physical	
		01	01	2.B.06-6	2.D.13-1 2.D.13-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician	
		01	01	2.B.06-4	2.D.13-3	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician	
	·	01	01	2.B.06-7	2.0.15	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician	
	,	01	01	2.8.06-9	4.D.13	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician	
		01	01	2.B.06-10	2.D.13-1 2.D.13-2	Furnace Operation Monitor	0985	003.281	Instrumentation Technician	
	. 0	01	01	1.G.02-13	2.D.13-3 4.E.04-1	Accident Control System Operation	2264	003.281	Instrumentation Technician	
		01	01	2.8.06-13	2.D.21-1 2.D.21-2	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician	
		01 01 01	01 01 01	2.B.06-15 2.B.06-16 1.G.02-14 2.B.06-12	2.D.21-3 2.D.22 4.D.14 2.D.24-1	Mixing Unit Operation Monitor Vibrator Operation Monitor Heat Rejection System Operation Monitor Dispersion Control System Operation	0999 1086 1146	003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician	
		01	01	2.B.06-29		Monitor Calorimeter Operation Monitor	0391	003.281	Instrumentation Technician	
	1	01	01	2.B.06-18		Heating/Cooling Device Operation	1241	003.281	Instrumentation Technician	
	'	01	10	2.8.06-8	2.A.18 2.A.39-1	Monitor Interferometer Operation Monitor	1609	003.281	Instrumentation Technician	
36	Schedule experiment runs	13	01	3.1.08	2.B.06-2 2.C.27 6.A.02	Fluids Convection Research Planner	1648	023.081 022.081	Physicist, Heat Chemist, Physical	
40	Evaluate experiment results	11	01	3.1.08	2.C.27 2.D.27 2.F.04	Fluid Convection Research Evaluator	1649	023.081 022.081	Physicist, Heat Chemist, Physical	
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REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: GRH/EMW APF	ROVED	BY:	GRH SERIES MS-1-A PA	GE MS-4.1-06-1

บเรต	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	PPE: MS-1 Ma	terials Sciences and Manufacturing	in Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	/load MS	5-4	E	EXPERIMENT:	4.0 Small and Low Temperature Ex 4.1 Convection of Fluids	periments	BASIC FU	NCTION: 06 - Experiment Condu	ct
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
47	Operate measuring, recording, and transmission systems and equipment		01 01 01 01 01	2.A.17-7 2.B.09 2.B.06-8 4.A.02 1.G.02-12 2.B.06-29	2.C.27 2.A.04-3 2.C.27 2.A.39-1 2.C.27 3.I.08 4.A.01	Camera Control Actuator TV Camera Control Actuator Interferometer Control Actuator Radio Communicator Telemetry Control Actuator Calorimeter Control Actuator	0245 0899 1616 0206 0662 0392	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Radio Engineer Instrumentation Technician Instrumentation Technician	
REV	VISION NO:	REVIS	SION DA	re:		PREPARED BY: GRH/EMW	APPROVED	BY: GF	H SERIES MS-1-A PA	AGEMS-4.1-06-2

DISC	PLINE: MATERIALS SCIENCES AN	ID MANUF	ACTURING]	FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-4	}	EXPERIMENT:	4.0 Small and Low Temperature Expended.1 Convection of Fluids	riments	BASIC FU	NCTION: 10 - Unscheduled Main (See Note MS-4)	tenance
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝΟ.	TITLE	NOTE NO.
48	Repair experiment equipment	07 07	01	2.8.06-4 2.8.06-6	2.0.13-3 4.C.02 2.0.13-1	Environmental Chamber Fault Identifier Environmental Chamber Fault	1066	828.281	Electronics Mechanic	
	,	28 28	01	2.D.13-1 2.D.13-2	2.D.13-2 4.C.02 4.D.18 4.D.18	Identifier Environmental Chamber Repairer Environmental Chamber Repairer	1066 1065 1065	828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic	
•		28 07 28	01 01	2.D.13-3 2.B.06-5 4.D.22-1	4.D.18 4.D.22-1 4.C.02 4.D.18	Environmental Chamber Repairer General Purpose Lab Bench Fault Identifier General Purpose Lab Bench Repairer	1065 2265 2266	828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic	
	1	07 28	01	2.8.06-2 2.8.06-2	4.C.02 4.D.18	Instrumentation and Control Center Fault Identifier Instrumentation and Control Center Repairer	2250 2251	828.281 828.281	Electronics Mechanic Electronics Mechanic	
		07 28	01	2.B.06-7 2.D.15	2.D.15 4.C.02 2.B.06-27 4.D.18	Atmosphere Supply and Control System Fault Identifier Atmosphere Supply and Control System		828.281	Electronics Mechanic	
		07	01	2.B.06-9	4.D.13 4.C.02 2.8.06-17	Repairer Power Conditioning/Distribution System Fault Identifier	1132	828.281	Electronics Mechanic Electronics Mechanic	
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic	
ı	1	07	01	2.B.06-10	2.D.24-1 4.C.02	Furnace Fault Identifier	0989	828.281	Electronics Mechanic	
		28 07	01 01	2.D.24-1 2.B.06-15	4.D.18 2.D.21-3 4.C.02	Furnace Repairer Mixing Unit Fault Identifier	0988 1003	828.281 828.281	Electronics Mechanic Electronics Mechanic	_
	·	07	01	2.8.06-13	2.D.21-2 4.C.02	Mixing Unit Fault Identifier	1003	828.281	Electronics Mechanic	
		28 28 28 07	01 01 01 01	2.D.21-1 2.D.21-2 2.D.21-3 2.B.06-16	4.D.18 4.D.18 4.D.18 2.D.22 4.C.02	Mixing Unit Repairer Mixing Unit Repairer Mixing Unit Repairer Vibrator Fault Identifier	1002 1002 1002 1090	828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
		28	01	2.0.22	4.D.18	Vibrator Repairer	1089	828.281	Electronics Mechanic	
REV	ISION NO:	REVIS	SION DA	TE:	·	PREPARED BY: GRH/EMW A	PROVED	BY: G	RH SERIES MS-1-A	PAGE MS-4.1-10-1

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA	CTURING	F	PE: MS-1 M	aterials Sciences and Manufacturing	in Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-4	E	XPERIMENT:	4.0 Small and Low Temperature Ex 4.1 Convection of Fluids	periments	BASIC FU	UNCTION: 10 - Unscheduled Ma (See Note MS-4	intenance
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
-	(Continued)	07 28 07 28 07 28 07 28 07 28 07 28 07	01 01 01 01 01 01 01 01 01	1.G.02-14 4.D.14 1.G.02-13 4.E.04-1 2.B.06-12 2.D.18 2.A.17-7 2.A.17-7 2.B.09 2.A.04-3 2.B.06-29 2.A.30-1 2.B.06-18 2.D.56 2.B.06-8 2.A.39-1	4.D.14 4.C.02 4.D.18 4.E.04-1 4.C.02 4.D.18 2.D.18 4.C.02 4.C.07 4.D.18 2.A.04-3 4.C.02 4.C.07 4.D.18 2.A.30-1 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.02 4.C.03 8.2.0.18 8.	Heat Rejection System Fault Identifier Heat Rejection System Repairer Accident Control System Fault Identifier Accident Control System Repairer Dispersion Control System Fault Identifier Dispersion Control System Repaire Camera Fault Identifier Camera Repairer TV Camera Fault Identifier TV Camera Repairer Calorimeter Fault Identifier Calorimeter Fault Identifier Identifier Heating/Cooling Device Fault Identifier Interferometer Fault Identifier Interferometer Repairer	1149 2267 2268 1114 r 1113 0886 1195 0689 0690 0376 1474 1246 1245 1614	828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic	
REV	TISION NO:	REVI	SION DA	re:		PREPARED BY: GRH/EMW	APPROVED	BY: (SRH SERIES MS-1-A	PAGE MS-4.1-10-2

APPENDIX H

FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING

FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE

MISSION MODE: A-SHUTTLE SORTIE

EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-4

EXPERIMENT: 4.0 SMALL AND LOW TEMPERATURE EXPERIMENTS

4.2 CRYSTAL GROWTH FROM MELTS

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING		FPE: MS-1 Ma	terials Science and Manufacturing in Sp	ace	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	/load MS-	4		EXPERIMENT:	4.0 Small and Low Temperature Experi 4.2 Crystal Growth from Melts (See Note MS-8)	ments	BASIC FU	INCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCI NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
5	Adjust conditions for next experiment run per results of previous experiment run	11	01	3.I.05-2	2.C.25 2.D.29 2.D.51 2.D.13-1 2.D.13-2	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
		13	01	3.1.05-2	4.D.14 2.C.25 2.D.29 2.D.51 2.D.13-1 2.D.13-2 4.D.14	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
	•	26	01	2.C.25	2.D.29	Materials Sample Remover	1357	003.181	Electrical Technician	
		27	01	2.C.25	2.D.51 2.D.29	Materials Sample Installer	1356	003.181	Electrical Technician	
		26 27	01 01	2.D.13-1 2.D.13-1	2.D.51 4.D.18 4.D.18 3.I.05-2	Environmental Chamber Module Remover Environmental Chamber Module Installe	1059 r 1060	003.181 003.181	Electrical Technician Electrical Technician	
		26 27	01 01	2.D.13-2 2.D.13-2	4.D.18 4.D.18 3.I.05-2	Environmental Chamber Module Remover Environmental Chamber Module Installe	1059 r 1060	003.181 003.181	Electrical Technician Electrical Technician	
		15	01	2.B.06-2	3.I.05-2 2.C.25 2.B.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician	
		15	01	1.G.02-14	4.D.14 3.I.05-2 2.C.25 2.D.13-1 2.D.13-2 2.D.24	Heat Rejection System Control Actuato	r 1184	003.281	Instrumentation Technician	11108-04-12-111-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
		15	01	2.8.06-2	2.0.51 3.1.05-2 2.C.25 2.B.06-1	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician	
		15	01	2.B.06-7	3.I.05-2 2.D.15 2.C.25	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician	
		26	01	2.D.15	3.I.05-2 2.C.25 4.D.18	Atmosphere Supply and Control System Module Remover	1127	003.131	Electrical Technician	
REV	SION NO:	REVIS	ION DA	re:		PREPARED BY: GRH/EMW APP	ROVED	BY:	GRH SERIES MS-1-A PAC	EMS-4.2-04-1

DISCI	PLINE: MATERIALS SCIENCES	AND MANUFA	ACTURING	I	FPE: MS-1 Mat	erials Sciences and Manufacturing in Sp	ace	MISSION 1	MODE: A - Shuttle Sortie	
ENPE	RIMENT AREA: Sortie Lab P	ayload MS-	-4	1	EXPERIMENT:	4.0 Small and Low Temperature Experim 4.2 Crystal Growth from Melts (See Note MS-8)	ents	BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
ĸО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
5	(Continued)	27	01	2.D.15	3. I.05-2 2. C.25	Atmosphere Supply and Control System . Module Installer	1128	003.181	Electrical Technician	
		15	01	2.8.06-6	4.0.18 2.0.13-2 2.0.13-2 3.1.05-2 2.0.25	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
•		15	01	2.B.06-9	4.D.13 3.I.05-2 2.C.25	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
		26	01	4.D.13	3.I.05-2 2.C.25 4.0.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician	
		27	01	4.D.13	3.1.05-2 2.C.25	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician	
		15	01	2.B.06-34	3.1.05-2	Zone Refiner Control Actuator	1425	003.281	Instrumentation Technician	
		26	01	2.D.51	2.C.25 3.I.05-2 2.C.25	Zone Refiner Module Remover	1430	003.181	Electrical Technician	
		27	01	2.0.51	4.D.18 3.I.05-2 2.C.25	Zone Refiner Module Installer	1431	003.181	Electrical Technician	
		15	01	2.B.06-35	3.1.05-2	Zone Melter Control Actuator	1405	003.281	Instrumentation Technician	
		26	01	2.D.29	2.C.25 3.I.05-2 2.C.25	Zone Melter Module Remover	1410	003.181	Electrical Technician	
		27	01	2.0.29	4.D.18 3.I.05-2 2.C.25	Zone Melter Module Installer	1411	003.181	Electrical Technician	
	·	26	01	2.A.43	4.D.18 3.I.05-2 2.C.25	Holographic Device Remover	1237	003.181	Electrical Technician	
		27	01	2.A.43	4.D.18 3.I.05-2 2.C.25 4.D.18	Holographic Device Installer	1238	003.181	Electrical Technician	
	ISION NO:	PEN	SION DAT	FD.	<u> </u>	REPARED BY: GRH/EMW APPE	ROVED	DV. C	RH SERIES MS-1-A PA	GE MS-4.2-04-

DISC	IPLINE: MATERIALS SCIENCES AND	MANUFA	CTURING	I	FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload M	5-4	E	EXPERIMENT:	4.0 Small and Low Temperature Expe 4.2 Crystal Growth from Melts (See Note MS-8)	riments	BASIC FU	NCTION: 04 - Experiment Conduct	;
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
5	(Continued)	26	01	2.A.43	3.1.05-2 2.C.25	Holographic Device Module Remover	1235	003.181	Electrical Technician	
		27	01	2.A.43	4.D.18 3.I.05-2 2.C.25 4.D.18	Holographic Device Module Installer	1234	003.181	Electrical Technician	
		15	01	2.8.06-17	2.D.52 3.I.05-2 2.C.25	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician	
	,	26	01	2.D.52	4.D.13 3.I.05-2 2.C.25 2.B.05-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician	
 		27	01	2.0.52	3.I.05-2 2.C.25 2.B.05-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician	
		26	10	2.D.52	3.I.05-2 2.C.25 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Remover	1095	003.181	Electrical Technician	
		27	01	2.D.52	3.I.05-2 2.C.25 2.B.05-17 4.D.13 4.D.18	VHF Power Unit Module Installer	1096	003.181	Electrical Technician	
ŀ		15	01	2.8.06-24		Crystal Puller Control Actuator	1415	003.281	Instrumentation Technician	
		26	01	2.0.49	3.I.05-2 2.C.25 2.B.06-24 2.D.13-1	Crystal Puller Remover	1419	003.181	Electrical Technician	
		27	01	2.D.49	2.D.13-2 3.I.05-2 2.C.25 2.B.06-24 2.D.13-1 2.D.13-2	Crystal Puller Installer	1418	003.181	Electrical Technician	
1943	ISION NO:	BEVI	I SION DAT	I FE:	<u> </u>	PREPARED BY: GRH/EMW A	PPROVED	BY: GF	H SERIES MS-1-A P	AGE4S-4.2-04-3

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	I	FE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Páyl	oad MS-4	ļ·	F	EXPERIMENT:	4.0 Small and Low Temperature Expe4.2 Crystal Growth from Melts (See Note MS-8)	riments	BASIC FL	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
5	(Continued)	15	01	2.8.06-18	3.I.05-2 2.C.25	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician	
		26	01	2.D.56	2.A.18 2.B.06-18 2.A.18 3.I.05-2	Heating/Cooling Device Remover	1250	003.181	Electrical Technician	
	,	27	01	2.D.56	2.C.25 2.B.06-18 2.A.18 3.I.05-2	Heating/Cooling Device Installer	1251	003.181	Electrical Technician	
		26	01	2.A.17-7	2.C.25 2.C.25 2.D.49 2.D.29	Camera Remover	0314	003.181	Electrical Technician	
		27	01	2.A.17-7	2.0.51 1.G.01-7 2.C.25 2.D.20 2.0.51	Camera Installer	0039	003.181	Electrical Technician	
		26	01	2.A.04-3	1.G.01-7 3.I.05-2 2.B.09 3.I.05-2 1.G.0107 2.D.29	TV Camera Remover	0661	003.181	Electrical Technician	
		27	01	2.A.04-3	2.D.51 2.D.49 2.C.25 2.B.09 3.I.05-2 1.G.01-7 2.D.29 2.D.51	TV Camera Installer	0306	003.181	Electrical Technician	
		15	01	2.8.06-13	2.D.49 2.C.25	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician	
	Tevat w.	B. D. D. L.	SION DA	l rk.	<u> L</u>	PREPARED BY: GRH/EMW A	PPROVED	DV. C	RH SERIES MS-1-4 PA	GEMS-4.2-04-4
KEV	ISION NO:	REVI	ION DA			PREPARED BY: GRH/EMW A	FFROVED	DI: 0	RH SERIES MS-1-A PA	UE/13-4.2-U4-4

oisci	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	1	FPE: MS-1 Mat	erials Sciences and Manufacturing	in Space	Wission y	10DE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS		1	EXPERIMENT:	4.0 Small and Low Temperature Ex 4.2 Crystal Growth from Melts (See Note MS-8)	periments	BASIC FU	NCTION: 04 - Experiment Cond	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPI	ЕМВЕМСУ МО.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
5	(Continued)	27	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.49 2.D.29	Mixing Unit Remover	0994	003.181	Electrical Technician	
•		27	01	2.D.21-2	2.D.51 3.I.05-2 2.C.25 2.D.13-1 2.D.13-2 2.D.49 2.D.29 2.D.29	Mixing Unit Remover	0994	003.181	Electrical Technician	
		26	01	2.D.21-1	3.1.05-2 2.C.25 2.D.13-1 2.D.13-2 2.D.49 2.D.29 2.D.51	Mixing Unit Installer	0991	003.181	Electrical Technician	
		26	01	2.D.21-2	3. I.05-2 2.C.25 2.D.13-1 2.D.13-2 2.D.49 2.D.29	Mixing Unit Installer	0991	003.181	Electrical Technician	
		15	01	1.G.02-14	2.D.51 3.I.05-2 2.C.25 4.D.14 3.I.05-2 2.D.51 2.D.29	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician	
9	Insert selected test cell in	18	01	2.D.57	4.D.02	Test Cell Stower	2331	003.281	Instrumentation Technician	
•	holder assembly	22	01	2.D.57	4.D.20 1.G.01-18 1.G.01-6	Test Cell Translocator	2330	000.000	General Technical Skill	
		27	01	2.0.57	1.G.01-2 2.D.59 3.I.05-2	Test Cell Installer	1446	003.181	Electrical Technician	
121/3	ISION NO:	REVIS	ION DAT	I	<u> </u>	REPARED BY: GRH/EMW	APPROVED	BY: GRH	SERIES MS-1-A	PAGE1S-4.2-04-

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	F	PE: MS-1 Mate	erials Sciences and Manufacturing in	Space	MISSION I	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload M	S-4	E	XPERIMENT:	4.0 Small and Low Temperature Expe 4.2 Crystal Growth from Melts (See Note MS-8)	riments	BASIC FU	NCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
10	Manually program heat sources	15	01	2.8.06-36	2.D.59 3.I.05-2 2.C.25 2.D.57	Peltier Heater Control Actuator	2332	003.281	Instrumentation Technician	
13	Place silicon bar in furnace	27	01	2.C.25	2.D.51 2.D.13-1	Materials Sample Installer	1356	003.181	Electrical Technician	
		27	01	2.0.25	2.D.13-2 2.D.29 2.D.13-1 2.D.13-2	Materials Sample Installer	1356	003.181	Electrical Technician	
31	Set up experiment apparatus	18 22	01 01	2.C.25 2.C.25	4.D.20 1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Unstower Materials Sample Translocator	1354 1355		Instrumentation Technician General Technical Skill	
•	,	27	01	2.0.25	2.D.29 2.D.51	Materials Samples Installer	1356	003.181	Electrical Technician	
		18	01	2.0.13-1	3.I.05-2 4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.181	Electrical Technician	
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
•		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician	
		18	01	2.B.06-2	4.0.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician	
		18	01	2.0.15	4.D.02 2.B.06-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician	
	· ·	18	01	4.0.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician	
		18	01	2.A.43	4.D.02 4.C.20	Holographic Device Unstower	1240	003.281	Instrumentation Technician	
•		22	01	2.A.43	1.G.01-18 1.G.01-2	Holographic Device Translocator	1239	000.000	General Technical Skill	
		27	01	2.A.43	1.G.01-6 2.B.06-14 2.C.25 3.I.05-2	Holographic Device Installer	1238	003.181	Electrical Technician	
<u> </u>	1	I DEVICE	L. DA	I	<u>l</u>	DEDADED DV. CONTENU	DDOVED	BV. 55	I Carbino no 1 a Tax	GE MS-4.2-04-
REV	ISION NO:	REVIS	SION DA	ΓE:	Р	REPARED BY: GRH/EMW A	PPROVED	BY: GR	H SERIES MS-1-A PA	GE MS-

DISCI	PLINE: MATERIALS SCIENCES	AND MANUFA	CTURING		FPE: MS-1 Mat	erials Sciences and Manufacturing in S	pace	MISSION N	IODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P.	ayload MS-			EXPERIMENT:	4.0 Small and Low Temperature Experi 4.2 Crystal Growth from Melts (See Note MS-8)	ments	BASIC FU	NCTION: 04 - Experiment Conduct	-
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFEREN
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
31	(Continued)	18	01	2.0.52	4.D.02 4.D.20	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician	
	. ,	22	07	2.D.52	1.G.01-18 1.G.01-2 1.G.01-6	VHF Power Unit Translocator	1093	000.000	General Technical Skill	
•		27	01	2.0.52	2.8.06-17 4.0.13 3.1.05-2	VHF Power Unit Installer	1091	003.181	Electrical Technician	
		18	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician	
	r	18 18	01 01	4.D.22-1 4.B.01-1	4.D.02 4.D.02 1.G.02-13	General Purpose Lab Bench Unstower Accident Control System Unstower	2252 2253	003.281 003.281	Instrumentation Technician Instrumentation Technician	
		18	01	2.D.49	4.D.02 4.D.20	Crystal Puller Unstower	1416	003.281	Instrumentation Technician	
	·	22	01	2.D.49	1.G.01-18 1.G.01-2 1.G.01-6	Crystal Puller Translocator	1417	000.000	General Technical Skill	
		27	01	2.0.40	2.C.25 2.D.13-1 2.D.13-2 2.D.29 2.D.51 2.B.06-24 3.I.05-2	Crystal Puller Installer	1418	003.181	Electrical Technician	
		18	01	2.D.56	4.D.20 4.D.02	Heating/Cooling Device Unstower	1253	003.281	Instrumentation Technician	
		22	01	2.D.56	1.G.01-18 1.G.01-2 1.G.01-6	Heating/Cooling Device Translocator	1252	000.000	General Technical Skill	
	·	27	01	2.D.56	2.B.06-18 2.A.18 3.1.05-2	Heating/Cooling Device Installer	1251	003.181	Electrical Technician	
		18	01	2.D.21-1	2.C.25 4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		18	01	2.D.21-2	4.D.20 4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		22	01	2.D.21	1.G.01-18 1.G.01-6 1.G.01-2	Mixing Unit Translocator	0993	000.000	General Technical Skill	
	ISION NO:	1,,,,,,,	ION DAT	1	<u> </u>	REPARED BY: GRH/EMW API	PROVED	<u> </u>	RH SERIES MS-1-A PA	GEMS-4.2-04

DISCIPLINE: MATERIALS SCIENCES, A	ND MANUF	ACTURIN	i 1	FPE: MS-1 Mat	erials Sciences and Manufacturing i	n Space	MISSION I	MODE: A - Shuttle Sortie	
EXPERIMENT AREA: Sortie Lab Pa	-		1	EXPERIMENT:	4.0 Small and Low Temperature Ex 4.2 Crystal Growth from Melts (See Note MS-8)	periments	BASIC FU	NCTION: 04 - Experiment Conduct	
CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILI.			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE
NO. DESCRIPTION .	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.
31 (Continued)	27	01	2.0.21-1	2.8.06-13 2.0.13-1 2.0.13-2 3.I.05-2	Mixing Unit Installer	0991	003.181	Electrical Technician	
	27	01	2.D.21-2	2.C.25 2.B.05-13 2.D.13-1 2.D.13-2 3.I.05-2 2.C.25	Mixing Unit Installer	0991	003.181	Electrical Technician	
	18	01	2.A.17-7	4.D.20 4.D.02	Camera Unstower	0292	003.281	Instrumentation Technician	
	22	01	2.A.17-7	2.B.06-13 2.D.13-1 2.D.13-2 3.I.05-2	Camera Translocator	1226	000.000	General Technical Skill	
	26	01	2.A.17-7	2.C.25 3.I.05-2 2.C.25 2.D.29 2.D.51 2.D.49	Camera Installer	0039	003.181	Electrical Technician	
	18	01	2.A.04-3	1.G.01-7 4.D.02	TV Camera Unstower	0054	003.281	Instrumentation Technician	
•	22	01	2.A.04-3	4.D.20 1.G.01-18 1.G.01-2	TV Camera Translocator	0026	000.000	General Technical Skill	
	27	01	2.A.04-3	1.G.01-6 1.G.01-7 2.B.09 2.D.29 2.D.51 2.D.49	TV Camera Installer	0306	003.181	Electrical Technician	
	18	01	2.D.51 2.D.51	2.D.13-1 3.D.13-2 4.D.20 4.D.02 1.G.01-18 1.G.01-6 1.G.01-2	Zone Refiner Unstower Zone Refiner Translocator	1426 1427	003.281 000.000	Instrumentation Technician General Technical Skill	
REVISION NO:	BEVIS	SION DAT	fr.	1	PREPARED BY: GRH/EMW	APPROVED	BY:	GRH SERIES MS-1-A P	AGEMS-4.2-04-8

oisci	PLINE: MATERIALS SCIENCES	AND MANUFA	ACTURING	1	FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab F	Payload MS-	-4	};	EXPERIMENT:	4.0 Small and Low Temperature Expe 4.2 Crystal Growth in Melts (See Note MS-8)	riments	BASIC FU	INCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
31	(Continued)	27	01	2.0.51	2.B.06-34 3.I.05-2 2.D.13-1 2.D.13-2	Zone Refiner Installer	1428	003.181	Electrical Technician	
		18	01	2.0.29	4.D.20 4.D.02	Zone Melter Unstower	1406	003.281	Instrumentation Technician	
		22	01	2.D.29	1.G.01-18 1.G.01-6	Zone Melter Translocator	1407	000.000	General Technical Skill	
			01	2.D.29	1.G.01-2 2.B.06-35 3.I.05-2 2.D.13-1 2.D.13-2 2.D.52 4.D.13	Zone Melter Installer	1408.	003.181	Electrical Technician	
35	Calibrate instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator	
		08 08 08	01 01 01	2.D.52 2.D.32 2.A.43	4.C.01 4.C.01	VHF Power Unit Calibrator Heating/Positioning Coil Calibrator Holographic Device Calibrator	1097 1333 1227.	710.884 710.884 710.884	Calibrator Calibrator Calibrator	
37	Define apparatus configuration	רנ	01	3.1.05-2	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-1 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.17-7 2.A.04-3 2.D.21-1 2.D.21-2 2.D.51 2.D.27 4.D.10	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic	
						on next page)		<u> </u>		
REV	ISION NO:	REVI	SION DA	TE:	1	PREPARED BY: GRH/EMW A	PPROVED	BY: GR	H SERIES MS-1-A	PAGE4S-4.2-04-

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA	TURING	1	FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-			EXPERIMENT:	4.0 Small and Low Temperature Exper 4.2 Crystal Growth from Melts (See Note MS-8)	iments	BASIC FU	UNCTION: 04 - Experiment Setup	
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE ·	NOTE NO.
37	(Continued)	13	01	(Continued	from previous 2.A.43 4.D.14 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1 2.D.56 2.A.18 2.D.13-1 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.17-7 2.A.04-3 2.D.21-1 2.D.21-2 2.D.51 2.D.27 4.D.10 2.A.43 4.D.14 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	crystal Growth Research Planner	1367	022.081	Chemist, Inorganic	
REV	ISION NO:	REVI	SION DA	TE:		PREPARED BY: GRH/EMW AP.	PROVED	BY: GRH	SERIES MS-1-A P	AGE4S-4.2-04-10

oisci	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING		FPE: MS-1 Ma	erials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	-4		EXPERIMENT:	4.0 Small and Low Temperature Expe 4.2 Crystal Growth from Melts (See Note MS-8)	riments	BASIC FU	JNCTION: 04 - Experiment Setu	p
	CREW TASK STATEMENT	CREW		TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	FUNCT.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
38	Define experiment conditions	13	01	3.1.05-2	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-1 2.B.06-2 2.D.15 4.D.13 2.A.17-7 2.A.04-3 2.D.21-1 2.D.21-2 2.D.51 2.D.29 2.D.27 4.D.10 2.A.43 4.D.14 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic	
50	Install data recording system Checkout optical instrumentation and measuring devices	18 22 27 03 03 14 14 03	01 01 01 01 01 01 01 01	4.D.10 4.D.10 4.D.10 2.D.27 2.A.43 2.D.27 2.A.43 2.A.17-7	4.D.02 4.D.20 1.G.01-18 1.G.01-2 1.G.01-6 2.B.06-1 2.B.06-2 4.D.09 4.D.09 4.C.02 2.B.06-14 4.D.09	Data Recorder Unstower Data Recorder Translocator Data Recorder Installer Materials Analysis Equipment Inspector Holographic Device Inspector Materials Analysis Equipment Tester Holographic Device Tester Camera Inspector	1519 1520 1156 2269 2270 1447 1449 0294	003.281 000.000 003.181 722.281 722.281 003.181 003.181 722.281	Instrumentation Technician General Technical Skill Electrical Technician Inspector, Systems Inspector, Systems Electrical Technician Electrical Technician Inspector, Systems	
REV	l 'ISION NO:	REVIS	ION DAT	E:		PREPARED BY: GRH/EMW A	PPROVED	BY:	GRH SERIES MS-1-A PA	GEMS-4.2-04-

DISC	IPLINE: MATERIALS SCIENCES AN	D MANUF	ACTURING		FPE: MS-1 M	aterials Sciences and Manufacturing	g in Space	MISSION	MODE: A - Shuttle Sortie			
ENPE	RIMENT AREA: Sortie Lab Pay	load MS-	-4		EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE NOTE		
χО.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NO.		
50	(Continued)	14 03 14	01 01 01	2.A.17-7 2.A.04-3 2.A.04-3	4.D.09 4.D.09 2.B.09 4.C.02	Camera Tester TV Camera Inspector TV Camera Tester	1448 0079 0633	003.181 722.281 003.181	Electrical Technician Inspector, Systems Electrical Technician			
										The state of the s		
										SC HARRON COLOR		
RE	VISION NO:	REVI	SION DA	TE:		PREPARED BY: GRH/E!4W	APPROVED	BY:	GRH SERIES MS-1-A	PAGEMS-4.2-04-12		

DISCI	PLINE: MATERIALS SCIENCES A	ND MANUF	ACTURIN	i 1	FPE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	-	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	4		EXPERIMENT:	4.0 Small and Low Temperature Exper 4.2 Crystal Growth from Melts (See Note MS-8)	iments	BASIC FUNCTION: 05 - Experiment Shutdown			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE	
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	ΝО.	TITLE	NOTE NO.	
24	Store crystal for return to earth	26 18 17	01 01 01	2.C.25 2.C.25 2.C.25	2.F.04 2.D.19-3 1.G.01-18 1.G.01-2 1.G.01-6 2.D.25 4.D.20 4.D.02	Materials Sample Remover Materials Sample Translocator Materials Sample Stower	1357 1355 1371	003.181 000.000 003.281	Electrical Technician General Technical Skill Instrumentation Technician		
33	Refurbish experiment apparatus	19 19 19 19 19 19 19 19	01 01 01 01 01 01 01 01	2.D.13-1 2.D.13-2 2.D.29 2.D.51 2.D.27 2.D.40 2.D.56 2.D.21-1 2.D.21-2	2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06 2.C.25 4.D.06	Environmental Chamber Cleaner Environmental Chamber Cleaner Zone Melter Cleaner Zone Refiner Cleaner Materials Analysis Equipment Cleaner Crystal Puller Cleaner Heating/Cooling Device Cleaner Mixing Unit Cleaner Mixing Unit Cleaner	1062 1062 1412 1432 1048 1422 2306 0998	003.281 003.281 003.281 003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician		
	Communicate experiment results to earth Develop film; make prints	05 05 06 06	01 01 01 01	4.A.02 3.I.05-2 4.B.08 4.D.19	3.1.05-2 2.C.25 4.A.02 2.C.25 2.A.27-6 2.A.27-6	Radio Communicator Crystal Growth Research Coordinator Film Processor Film Processor	0206 2298 0328 0328	003.187 022.081 976.782 976.782	Radio Engineer Chemist, Inorganic Film Processor Film Processor	MS-3	
REV	ISION NO:	REVIS	SION DA	TE:		PREPARED BY: GRH/EMW AP	PROVED	BY: G	RH SERIES MS-1-A PA	GEMS-4.2-05-1	

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFA	CTURING	F	PE: MS-1 M	aterials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pay	load MS	-4	E	EXPERIMENT:	4.0 Small and Low Temperature Exper 4.2 Crystal Growth from Melts (See Note MS-8)	iments	BASIC FU	UNCTION: 06 - Experiment Conduct	
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE
۲O.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE .	NOTE NO.
1	Observe solid-liquid interface (crystal pulling)	02	01	2.C.25	3. I.05-2 2.D.49 2.B.09 2.A.04-3 2.D.13-1 2.D.13-2	Crystal Growth Observer	1368	022.081	Chemist, Inorganic	
2	Determine characteristics of solid-liquid interface	04	01	2.C.25	3.I.05-2 2.B.09 2.A.04-3 2.A.18 2.D.13-1 2.D.13-2	Crystal Growth Characteristics Determiner	1444	022.081	Chemist, Inorganic	
3	Adjust furnace temperature set-point	15	01	2.B.06-35	2.D.29 2.C.25 3.I.05-2 5.D.	Zone Melter Control Actuator	1405	022.081	Chemist, Inorganic	
		15	01	2.B.06-34		Zone Refiner Control Actuator	1425	022.081	Chemist, Inorganic	
4	Interpret strip-chart records (temperature)	02	01	3.1.05-2	2.F.02-5 2.C.25 4.D.10	Crystal Growth Data Observer	2333	022.081	Chemist, Inorganic	
		11	01	3.1.05-2	5.D. 2.F.02-5 2.C.25 4.D.10	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic	
		04	01	3.1.05-2	5.D. 2.F.02-5 2.C.25 4.D.10 5.D.	Crystal Growth Data Interpreter	2334	022.081	Chemist, Inorganic	
REV	ISION NO:	REVI	SION DA	TE:		PREPARED BY: GRH/EMW AP	PROVED	BY: GF	RH SERIES MS-1-A PA	GB4S-4.2-06-1

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	1	FPE: MS-1 Mat	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab P	aÿload M	S-4		EXPERIMENT:	4.0 Small and Low Temperature Exper 4.2 Crystal Growth from Melts (See Note MS-8)	BASIC FUNCTION: 06 - Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT	OPER.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENC
NO.	DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOIE NO.
6	Prepare section of pulled crystal	27 10	01 01	2.C.25 2.D.27-2	2.D.27-2 3.I.05-2 2.C.25 3.I.05-2	Crystal Sample Installer Materials Analysis Equipment Controller	2335 1049	022.081	Chemist, Inorganic Chemist, Inorganic	
•	Analyze crystal homogeneity under phase-contrast microscope	27 10	01 01	2.C.25	2.A.18-1 3.I.05-2 2.D.27	Crystal Sample Installer	2335	022.081	Chemist, Inorganic	
		12	01	2.A.18-1 2.C.25	2.C.25 3.I.05-2 2.A.18-1 3.I.05-2 2.D.27	Microscope Controller Crystal Growth Structure Analyzer	1445	022.081	Chemist, Inorganic	
8	Photograph solid-liquid interface with TV camera	15	01	2.8.09	2.A.04-3 2.C.25 2.A.18	TV Camera Control Actuator	0899	003.281	Instrumentation Technician	
11	Observe crystal growth through microscope (floating zone)	02	01	2.C.25	2.A.18 3.I.05-2 2.D.29 2.D.56	Crystal Growth Observer	1368	022.081	Chemist, Inorganic	
12	Take 16mm movies of crystal growth	15	01	2.A.17-7	2.C.25 2.A.18	Camera Control Actuator	0245	003.281	Instrumentation Technician	
14.	Activate zone heating	15	01	2.8.06-35	2.D.29 2.C.25 3.I.05-2	Zone Melter Control Actuator	1405	003.281	Instrumentation Technician	**************************************
15	Move heating zone along crystal bar	10	oı	2.8.06-35	2.D.29 2.C.25 3.I.05-2	Zone Melter Controller	2337	022.081 003.281	Chemist, Inorganic Instrumentation Technician	
REV	ISION NO:	REVIS	ION DA	re:		PREPARED BY: GRH/EMW AP	PROVED	BY:	GRH SERIES MS-1-A PA	GEMS-4.2-06-2

DISC	IPLINE: MATERIALS SCIENCES A	ND MANUI	FACTURIN	G F	PE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie	
EXPE	RIMENT AREA: Sortie Lab Pa	yload MS	S-4	E	XPERIMENT:	4.0 Small and Low Temperature Exper 4.2 Crystal Growth from Melts (See Note MS-8)	BASIC FUNCTION: 06 - Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	NDENCY NO.	TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
16	Observe temperature- monitoring devices	01	01	2.B.06-35	2.D.29 2.C.25 5.D.	Zone Melter Operation Monitor	1413	022.081 003.281	Chemist, Inorganic Instrumentation Technician	
		01	01	2.B.06-34	2.D.51 2.C.25 5.D.	Zone Refiner Operation Monitor	1433	022.081 003.281	Chemist, Inorganic Instrumentation Technician	
		01	01	2.B.06-18	2.D.56 2.C.25 2.A.18	Heating/Cooling Device Operation Monitor	1241	003.281	Instrumentation Technician	
		01	01	3.1.05-2	5.D. 2.D.29 2.B.06-35 2.D.51 2.B.06-34 2.D.56 2.B.06-18 5.D. 2.C.25	Crystal Crowth Process Monitor .	1512	022.081	Chemist, Inorganic	
36	Schedule experiment runs	13	01	3.1.05-2	2.C.25 2.B.06-2 6.A.02 2.B.06-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic	-
39	Monitor experiment performance	01	01	3.1.05-2	2.C.25 2.B.06-2 2.B.09	Crystal Growth Research Monitor	2303	003.281	Instrumentation Technician	
		01	01	2.B.06-6	2.D.13-2 2.D.13-1	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician	
		01	01	2.B.06-7	2.D.15	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician	į.
		01	01	2.B.06-9	4.D.13 2.B.06-17 2.D.52	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician	
		01	01	2.B.06-34	2.D.51 2.D.13-1 2.D.13-2	Zone Refiner Operation Monitor	1433	022.081 003.281	Chemist, Inorganic Instrumentation Technician	
		01	01	2.B.06-17	2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician	
REV	ISION NO:	REVIS	SION DA	re:] 1	PREPARED BY: GRH/EMW AP	PROVED	BY: GRH	SERIES MS-1-A	PAGEMS-4.2-05-3

DISCI	PLINE: MATERIALS SCIENCES AN	D MANUFA	CTURING	F	PE: MS-1 Ma	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie			
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-4	F	EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 06 Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPE	ENDENCY NO.	TASK - SKILL			REFERENCE			
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.		
39	(Continued)	01 01 01	01 01 01	2.B.06-2 1.G.02-13 2.B.06-35	2.B.06-1 4.E.04-1 2.D.29 2.D.13-1 2.D.13-2 4.D.14	Computer Operation Monitor Accident Control System Operation Monitor Zone Melter Operation Monitor Heat Rejection System Operation Monitor	1055 2264 1413	003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Chemist, Inorganic Instrumentation Technician			
		01 01 01	01	2.8.06-24 2.8.06-14 2.8.06-18	2.D.13-1 2.D.13-2 2.D.52 2.A.43	Figure 1. Figure	1423 1228 1241	003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician			
		01	01	2.B.06-13 2.B.09		Monitor Mixing Unit Operation Monitor TV Camera Operation Monitor	0999	003.281	Instrumentation Technician Instrumentation Technician			
40	Evaluate experiment results	11	01	3.1.05-2	2.C.25 2.D.27	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic			
41	Communicate experiment results to earth	05 05	01	4.A.02 3.I.05-2	3.I.05-2 2.C.25 2.D.51 2.D.29 2.D.49 2.D.13-1 2.D.13-2 4.A.02 2.C.25 2.D.51 2.D.29 2.D.49	Radio Communicator Crystal Growth Research Coordinator	2298	003.187	Radio Engineer Chemist, Inorganic			
REV	'ISION NO:	REVIS	SION DAT	re:	2.0.13-1 2.0.13-2 2.0.21-1 2.0.21-2	PREPARED BY: GRH/EMW AF	PROVED	BY: GRI	H SERIES MS-1-A P	AGE MS-4.2-06-4		

DISC	IPLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	1	FPE: MS-1 Mat	terials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie		
EXPE	RIMENT AREA: Sortie Lab Pay	load MS-	-4	1	EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-3)			BASIC FUNCTION: 06 - Experiment Conduct			
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEPI	ENDENCY NO.	TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			
NO.	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.	
47	Operate measuring, recording, and transmission systems & equipment	15 15 15 05 15	01 01 01 01	2.A.17-7 2.B.09 2.B.06-14 4.A.02 1.G.02-12	2.C.25 3.I.05-2	Camera Control Actuator T.V Camera Control Actuator Holographic Device Control Actuator Radio Communicator Telemetry Control Actuator	0245 0899 1229 0206 0662	003.281 003.281 003.281 003.281 003.281	Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician Instrumentation Technician		
	•						-				
REV	USION NO:	REVIS	SION DA	re:		PREPARED BY: GRH/EMW AP	PROVED	BY: G	RH SERIES MS-1-A	PAGEMS-4.2-05-5	

DISCIPLINE: MATERIALS SCIENCES A	IND MANUF	ACTURING	i I	FPE: MS-1 M	aterials Sciences and Manufacturing in	Space	MISSION	MODE: A - Shuttle Sortie .	
EXPERIMENT AREA: Sortie Lab Payl	oad MS-4	,	I	EXPERIMENT:	4.0 Small and Low Temperature Experi4.2 Crystal Growth from Melts (See Note MS-8)	BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT	CREW FUNCT.	OPER.	TASK DEPE	ENDENCY NO.	TASK - SKILL			REFERENCE	
NO. DESCRIPTION	NO.	ENVIR. NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.
. Repair experiment equipment	07	01	2.8.06-6	2.D.13-1 2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic	
	28 29 07	01 01 01	2.0.13-1- 2.0.13-2 2.8.06-5	4.D.18 4.D.18 4.D.22-1 4.C.02	Environmental Chamber Repairer Environmental Chamber Repairer General Purpose Lab Bench Fault Identifier	1065 1065 2265	828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic	
	28 07	01	4.D.22-1 2.8.06-2	4.D.18 4.C.02	General Purpose Lab Bench Repairer Instrumentation and Control Center Fault Identifier	2266 2250	828.281 828.281	Electronics Mechanic Electronics Mechanic	
	28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic	
•	- 07	01	2.8.06-7	2.D.15 4.C.02	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic	
·	28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic	
·	07	01	2.8.06-9	4.D.13 4.C.02 2.B.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic	
	28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic	
	07	01	2.8.06-14	2.A.43 4.C.02 4.C.01 4.C.07	Holographic Device Fault Identifier	1233	828.281	Electronics Mechanic	
·	28 07	01 01	2.A.43 2.B.06-17	4.D.18 2.D.52 4.C.02 2.B.06-9	Holographic Device Repairer VHF Power Unit Fault Identifier	1232 1103	828.281 828.281	Electronics Mechanic Electronics Mechanic	
	28 07	01 01	2.D.52 2.B.06-2	4.D.18 2.B.06-1 4.C.02	VHF Power Unit Repairer Computer Fault Identifier	1102 0523	828.281 828.281	Electronics Mechanic Electronics Mechanic	
	28 07	01	2.8.06-1 1.G.02-14	4.D.18 4.D.14 4.C.02	Computer Repairer Heat Rejection System Fault Identifier	0540 1150	828.281 828.281	Electronics Mechanic Electronics Mechanic	
	28 07	01 01	4.D.14 1.G.02-13	4.D.18 4.E.04-1 4.C.02	Heat Rejection System Repairer Accident Control System Fault Identifier	1149 2267	828.281 828.281	Electronics Mechanic Electronics Mechanic	
·	28	01	4.E.04-1	4.D.18 4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic	
REVISION NO:	REVI	SION DA	TE:	<u> </u>	PREPARED BY: GRH/EMW AP	PROVED	BY:	GRH SERIES MS-1-A	PAGE MS-4.2-10-

DISCI	PLINE: MATERIALS SCIENCES AND	MANUFAC	TURING	1	FPE: MS-1 M	aterials Sciences and Manufacturing	!	MISSION MODE: A - Shuttle Sortie					
EXPE	RIMENT AREA: Sortie Lab Pa	ayload MS	-4		EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 10 - Unscheduled Maintenance				
	CREW TASK STATEMENT	CREW FUNCT.	OPER. ENVIR.	TASK DEP	ENDENCY NO.	TASK - SKILL			PRIMARY OCCUPATIONAL SKILL	REFERENCE			
NO:	DESCRIPTION	NO.	NO.	PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	NOTE NO.			
48	(Continued)	28 28 28 07 28 07 28 07	01 01 01 01 01 01 01	2.B.06-13 2.D.21-1 2.D.21-2 2.B.06-24 2.D.49 2.B.06-18 2.D.56 2.B.06-34 2.D.51 2.B.06-35	2.D.21-2 4.C.02 4.D.18 4.D.18 2.D.49 4.C.02 4.D.18 2.D.56 4.C.02 4.D.18 2.D.51 4.C.02 4.D.18	Mixing Unit Fault Identifier Mixing Unit Repairer Mixing Unit Repairer Crystal Puller Repairer Crystal Puller Repairer Heating/Cooling Device Fault Identifier Heating/Cooling Device Repairer Zone Refiner Fault Identifier Zone Refiner Repairer Zone Melter Fault Identifier	1002 1002 1002 1442 1443 1246 1246 1436 1437 1439	828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic				
		28 07 28 07 28	01 01 01 01	2.D.29 2.A.17-7 2.A.17-7 2.B.09 2.A.04-3	4.C.02 4.D.18 4.C.02 4.C.07 4.D.18 2.A.04-3 4.C.02 4.C.07 4.D.18	Zone Melter Repairer Camera Fault Identifier Camera Repairer TV Camera Fault Identifier TV Camera Repairer	1440 0886 1195 0689	828.281 828.281 828.281 828.281 828.281	Electronics Mechanic Electronics Mechanic Electronics Mechanic Electronics Mechanic				
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REV	ISION NO:	REVIS	SION DA	TE:	<u> </u>	PREPARED BY: GRH/EMW	APPROVED	BY: GF	RH SERIES MS-1-A	PAGE MS-4.2-10-			